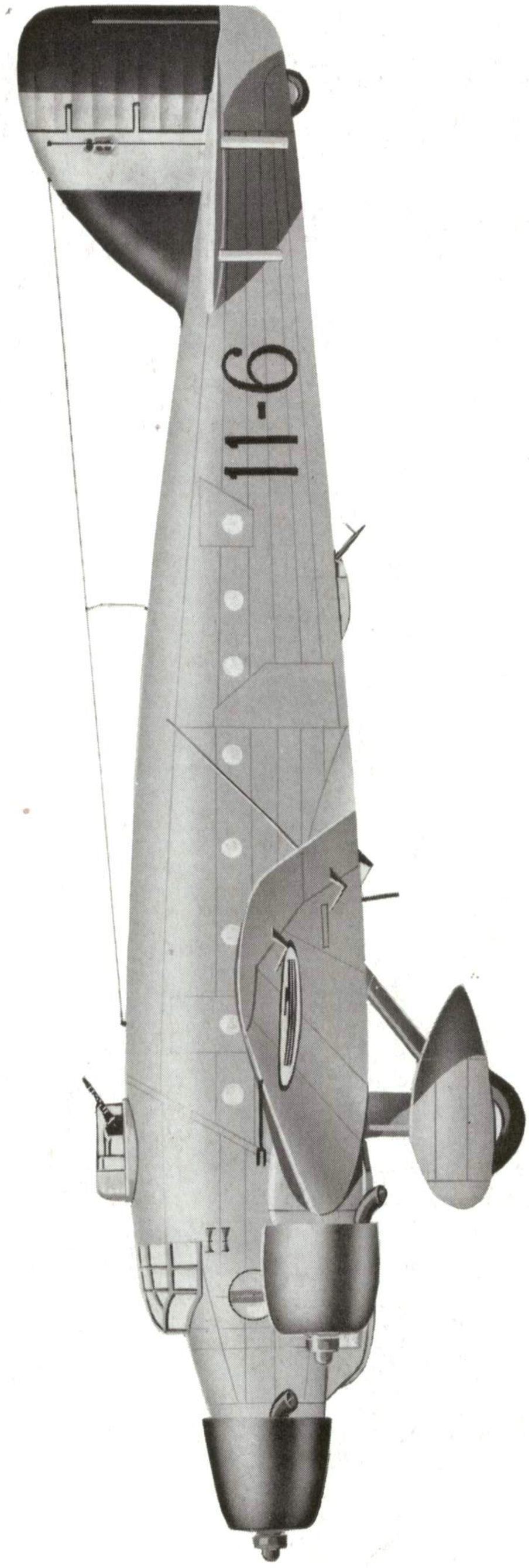
PROFILE PUBLICATIONS

The Savoia Marchetti S.M.81



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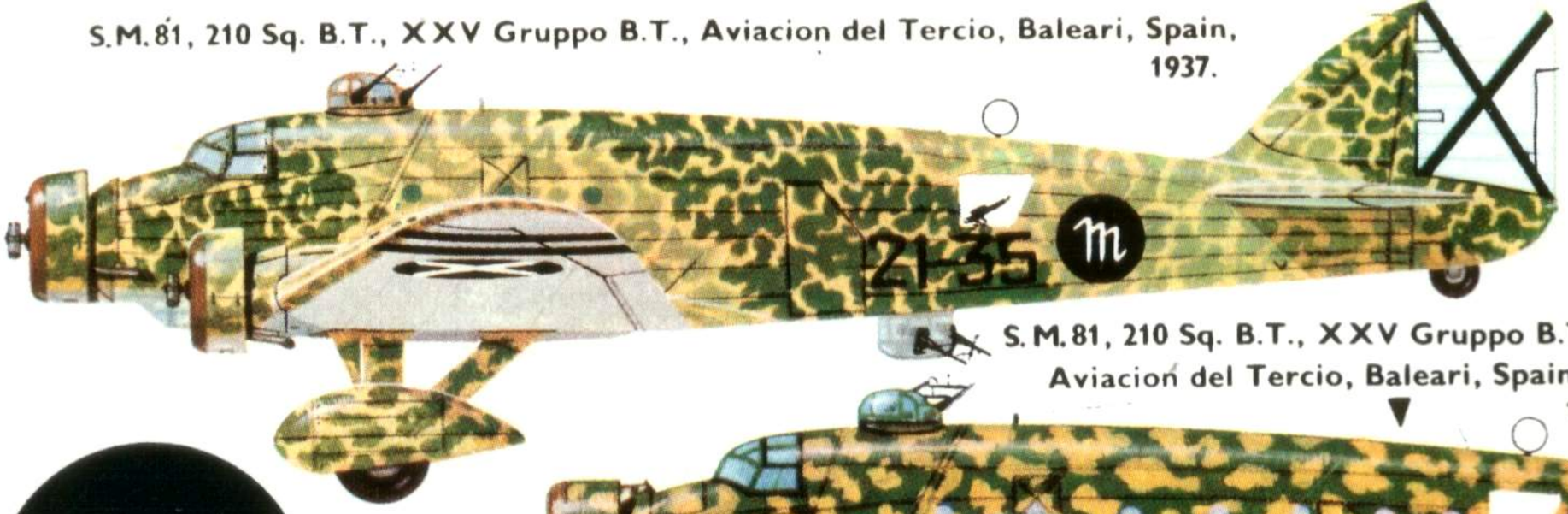
S.M.81, 210 Sq. B.T., XXV Gruppo B.T., Aviacion del Tercio, Baleari, Spain, 1937.

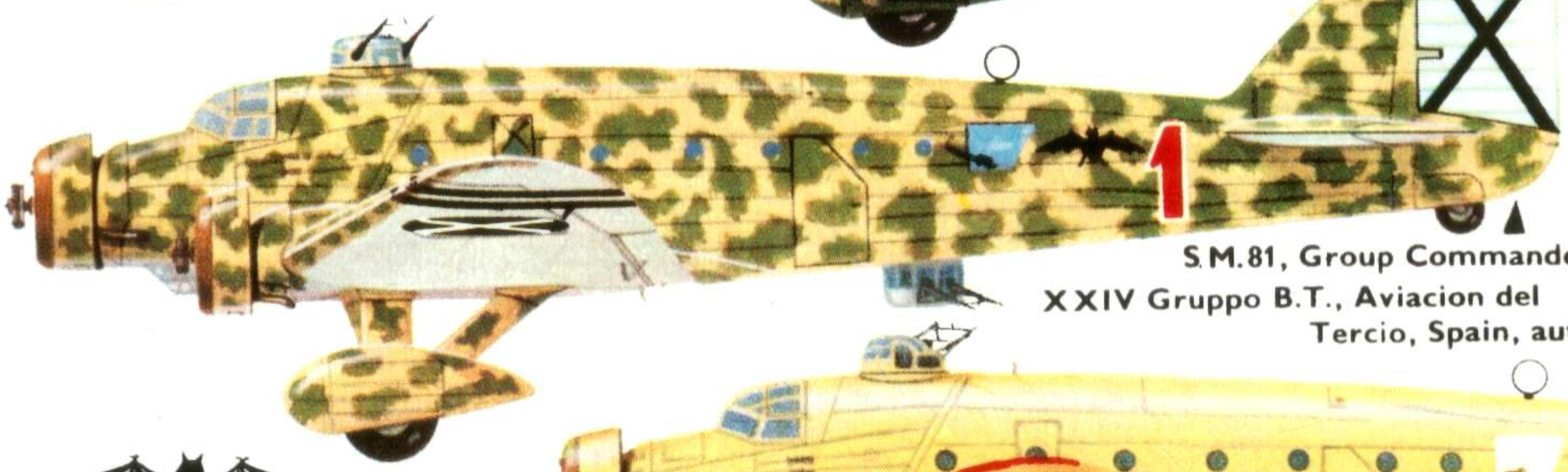


XXV Gruppo.

S.M.81, 210 Sq. B.T., XXV Gruppo B.T., Aviacion del Tercio, Baleari, Spain, 1937.

XXV Gruppo, "M" Mussolini, Bruno.

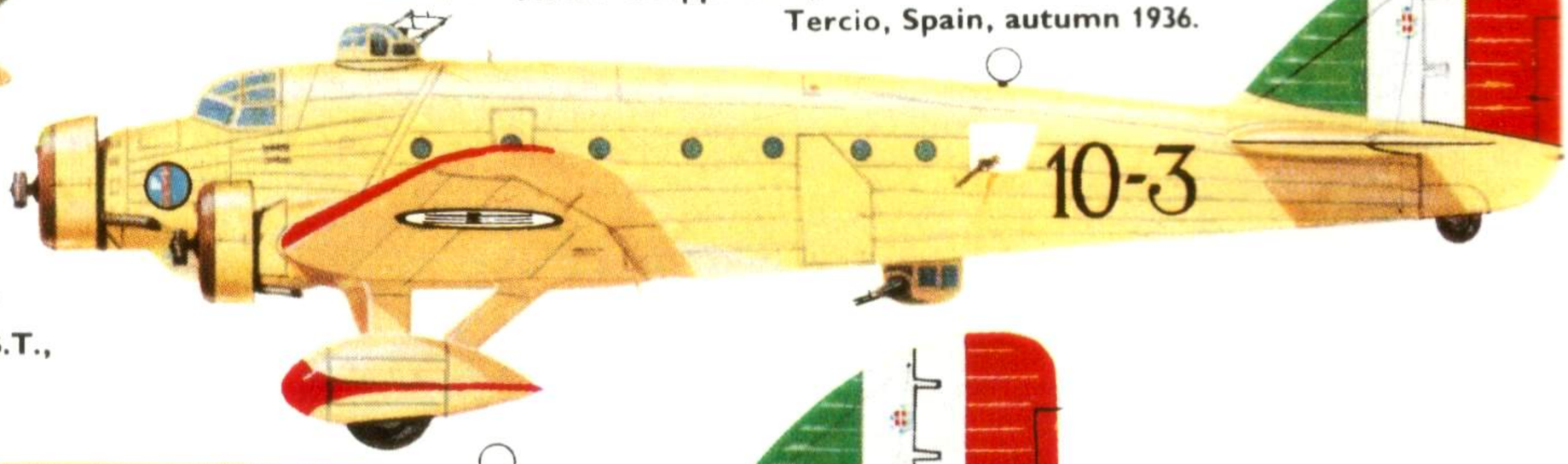
Aviacion del Tercio wing marking, undersurfaces only. Upper surfaces white cross only. ►

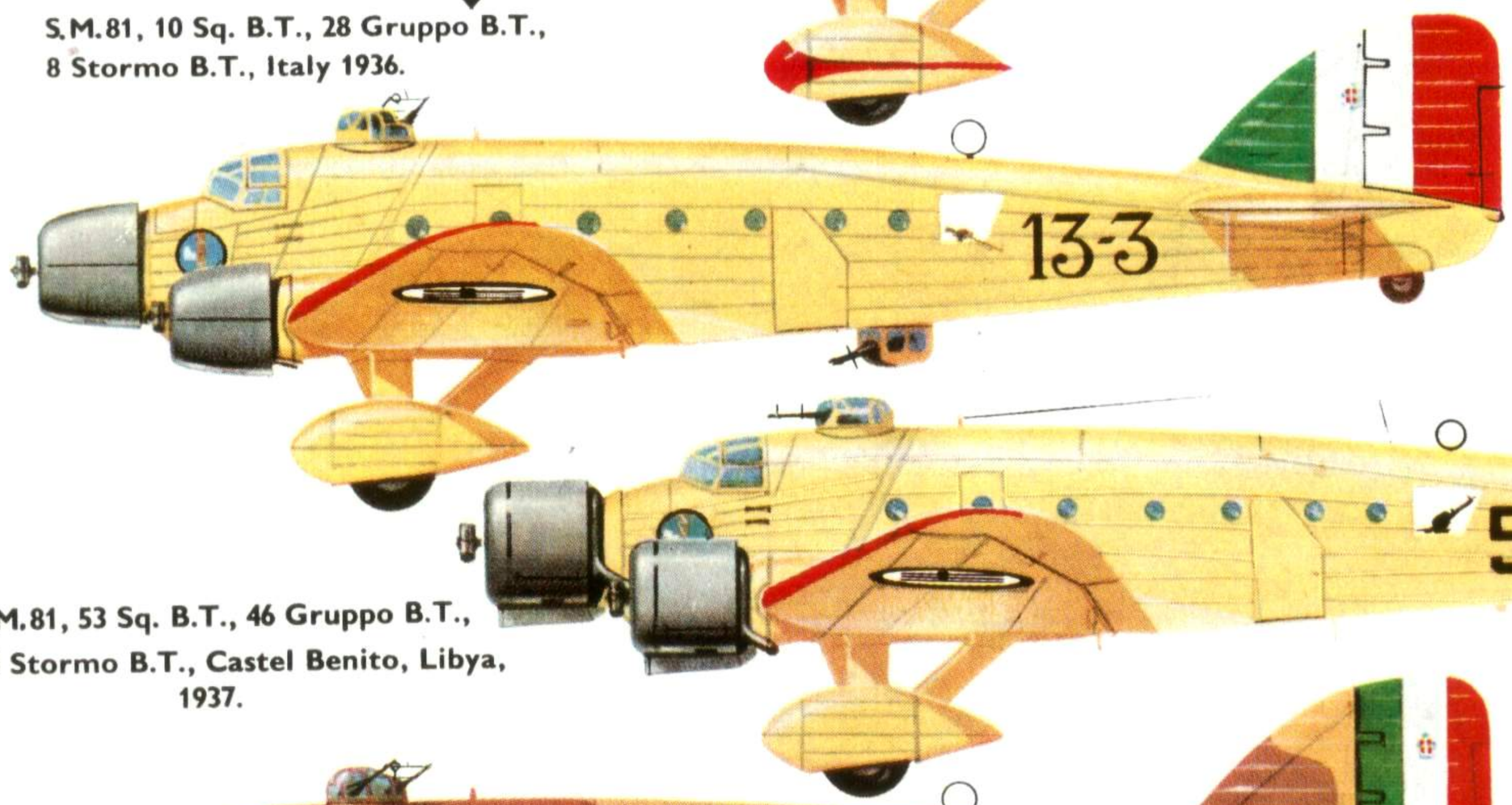


S.M.81, Group Commander's aircraft, XXIV Gruppo B.T., Aviacion del Tercio, Spain, autumn 1936.

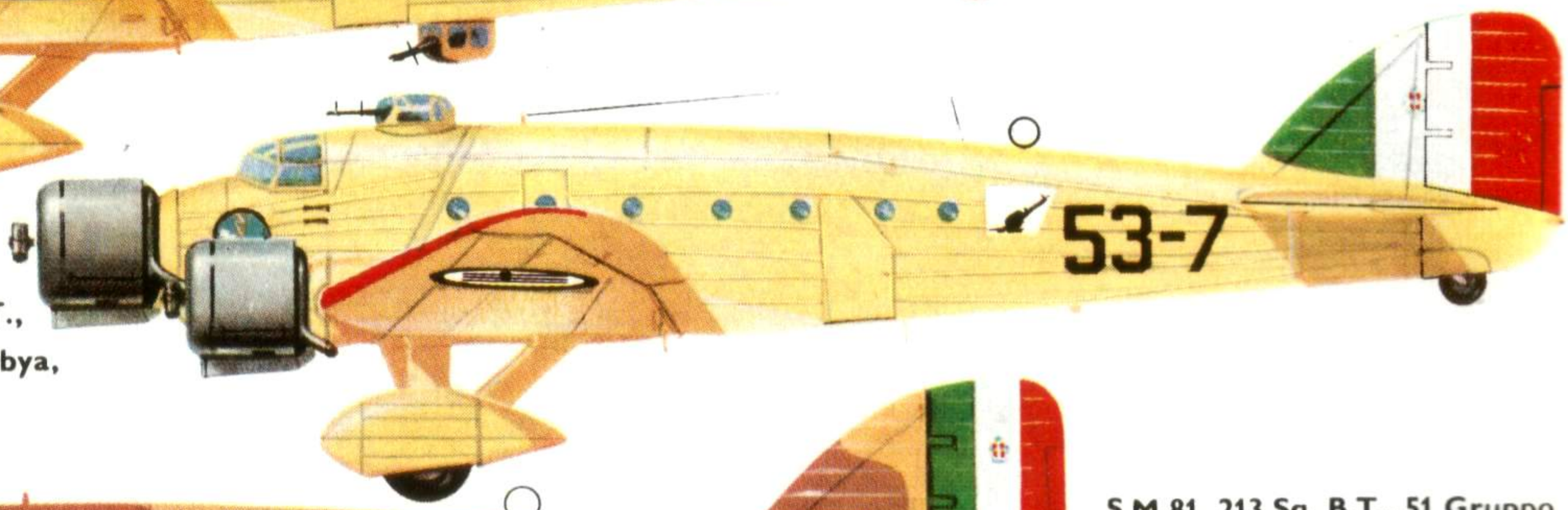
XXIV Gruppo.

S.M.81, 10 Sq. B.T., 28 Gruppo B.T., 8 Stormo B.T., Italy 1936.

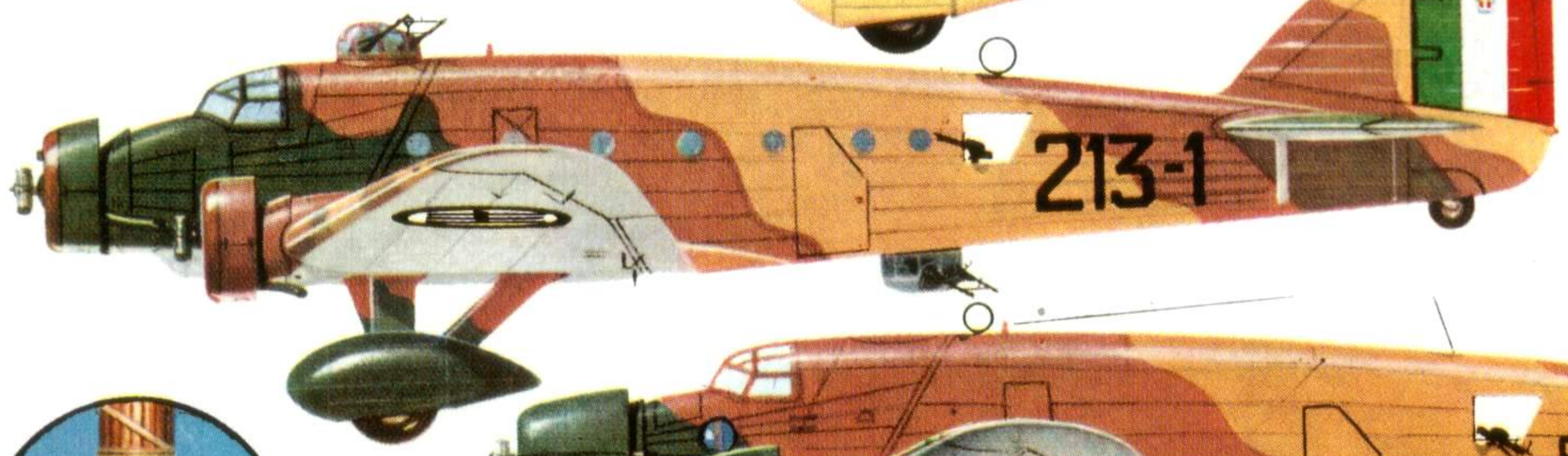




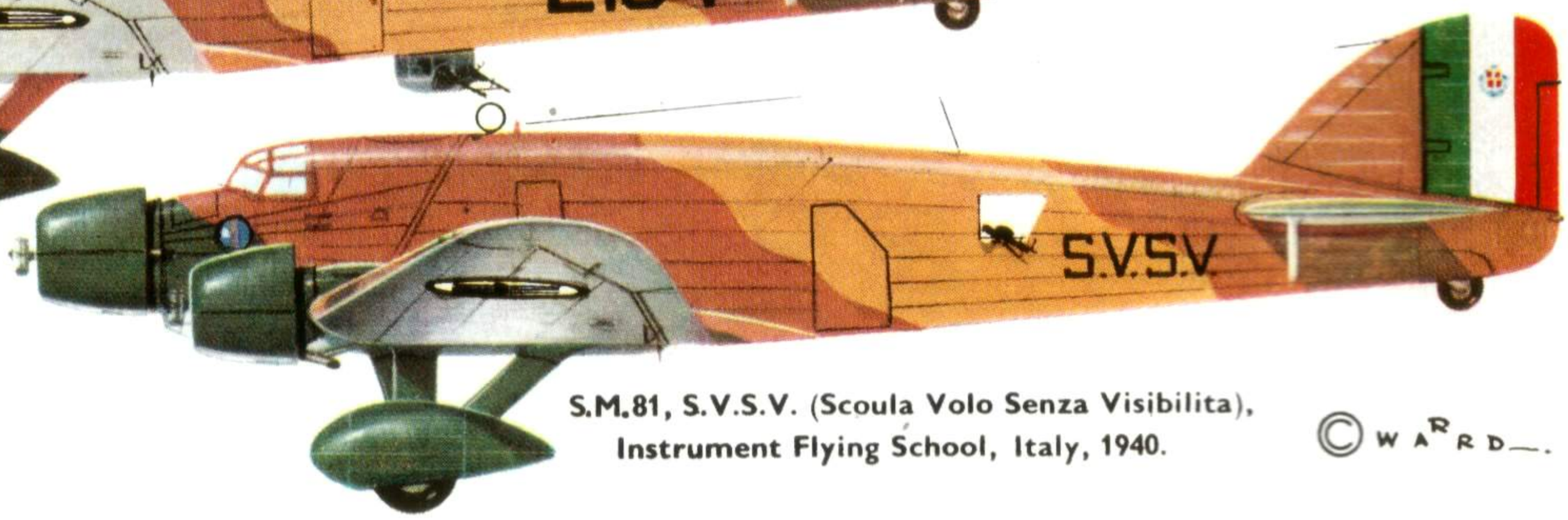
S.M.81, 13 Sq. B.T., 26 Gruppo B.T., 9 Stormo B.T., Gura, Abyssinia, early 1936.

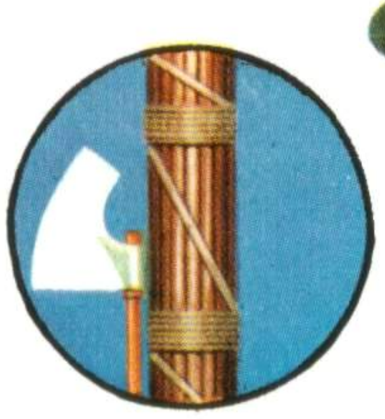


S.M.81, 53 Sq. B.T., 46 Gruppo B.T., 15 Stormo B.T., Castel Benito, Libya, 1937.



S.M.81, 213 Sq. B.T., 51 Gruppo B.T., 16 Stormo B.T., Vicenza, Italy, January 1937.





S.M.81, S.V.S.V. (Scoula Volo Senza Visibilita), Instrument Flying School, Italy, 1940.

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by Giorgio Apostolo

An Alfa-Romeo-engined S.M.81 of the 202° Squadriglia *in flight: this unit took part in the occupation of Albania, flying transport and night bombing missions from Valona.* (Photo: Heinz J. Nowarra)

The Savoia Marchetti S.M.81

There is no doubt that General Franco's Nationalist movement in Spain was saved from early extinction largely by nine tri-motor aircraft; the S.M.81 bombers which on 30th July 1936 flew from Elmas in Sardinia to Melilla in Spanish Morocco, under the command of *Commondante* Bonomi, and assisted in the transfer from Centa to Algeciras of the units of Spanish colonial troops without which the Nationalist insurrection would have lost its impetus and become ineffective.

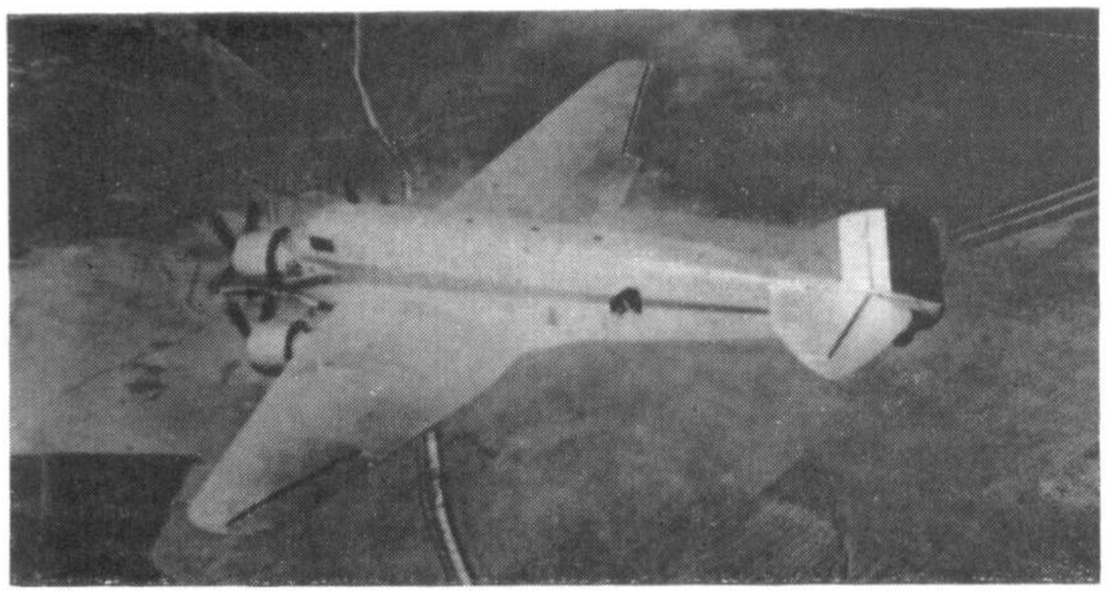
Almost contemporary with the S.M.79 (see *Profile* No. 89), the S.M.81 appeared in 1934 as a military development of the S.M.73 tri-motor transport, and was immediately put into series production in order to build up the medium bomber strength of the *Regia Aeronautica;* it remained the standard Italian bomber until the greatly superior S.M.79 began to enter squadron service in 1937. Production was carried out on a large scale and involved, apart from the parent company, almost every aviation plant in Italy; Piaggio and CMASA produced complete airframes.

To achieve the greatest possible reliability and versatility in service, the aircraft was conceived in several versions powered by different types of engines. The four main variants were powered by the 650 h.p. Alfa Romeo 125 RC.35; the 680 h.p. Alfa Romeo 126 RC.34; the 670 h.p. Piaggio P.X RC.35; and the 650 h.p. Gnôme-Rhône K.14. Consequent to the variation in powerplant, three distinct types of engine cowlings were employed; an initial short-chord Townend ring was followed by a similar type of longer chord, and this was finally replaced by a smoother, tapered Magni-NACA cowling. It is known, however, that the prototype and some of the pre-production aircraft were powered by Piaggio P.IX RC.40 engines with four-bladed propellers and undercarriages of smaller wheel-base; at that stage the armament layout had not been finalised and the fuselage windows differed in configuration from those of series machines. In most cases the propellers were subsequently replaced by standard three-blade installations.

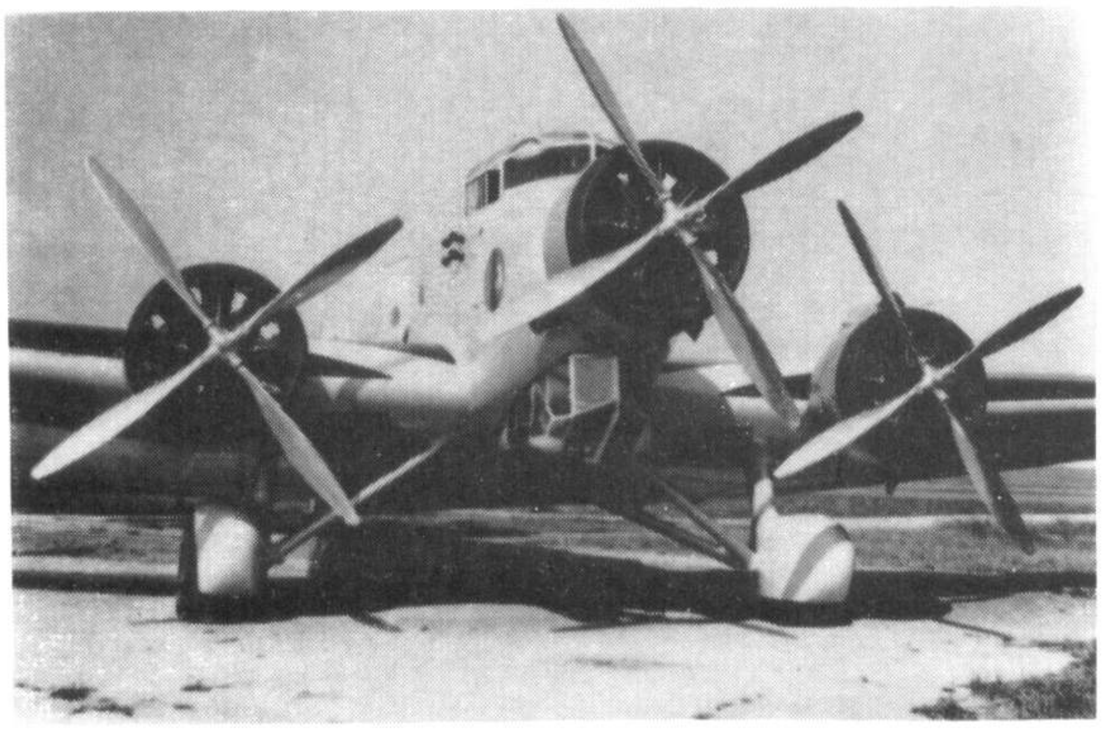
THE S.M.81 DESCRIBED

When it appeared, the S.M.81 represented a high standard of complexity for its time; it also presented the most serious challenge to date for the well-known *Centro Sperimentale* at Guidonia. The prototype and the pre-series machines were subjected to a tight schedule of severe tests, including a trials programme involving the mounting of two torpedoes; these latter were not particularly successful.

The aircraft was of mixed construction; the cantilever wing of wooden structure was built up on three double-T section main spars and in three sections, the centre-section being integral with the fuselage. For emergency floatation, 36 water-tight compartments were built into the structure, as with



The prototype S.M.81 in flight. (*Unless otherwise stated, all photographs in this* Profile *are from the author's collection*).



One of the pre-series aircraft, showing details of the bomb-aimer's position and the open-sided wheel fairings. The engines were Piaggio P.IX R.C.40's with narrow-chord Townend rings.

the civil S.M.73. The ailerons were of tubular steel with doped fabric skinning, and the flaps (maximum angle 38°) were of modern design, offering low-speed performance. The fuselage was of welded chrome-molybdenum steel tubular structure, with a mixed aluminium and fabric skin. The structure was made in two sections; the main section from wing-root to tail and the secondary section including the cockpit and central engine housing. The cockpit accommodated two pilots seated side by side, with a further crew of three; bomb-aimer, engineer, and radio operator. A glazed bomb-aimer's gondola was provided under the fuselage immediately aft of the central engine nacelle; armament included two semi-retractable hydraulically operated turrets in dorsal and ventral positions, each mounting two 7·7 mm. machine guns. A fifth hand-held machine gun could be fired from either one of two beam hatches.

The normal bomb-load was 2,640 lbs. (maximum 4,400 lbs.) stored vertically in the bottom of the fuselage. This method of bomb storage did not allow a predictable bomb trajectory, which partly explains the mediocre results often obtained by Italian bombers. Typical loads were four 1,100 lb. or 550 lb. bombs; sixteen 220 lb. bombs; twenty-eight 110 lb. bombs; or fifty-six 44 lb. or 33 lb. weapons.

Because of the low reliability displayed by the 7·7 mm. guns, many wartime S.M.81's were fitted with a Lanciani Delta turret mounting a single 12·7 mm. Safat gun.

The radio and electrical system was a standard type with a single battery and two main circuits. The radio equipment included an RA 350 transmitter, an AR 5 receiver and two P 63 radio compasses.

The tail unit was constructed of welded chrome-molybdenum steel tubular framework with fabric covering; the tailplane was of variable incidence, with external bracing and a rudder servo tab. The undercarriage consisted of two independent spatted elements with a split axle.

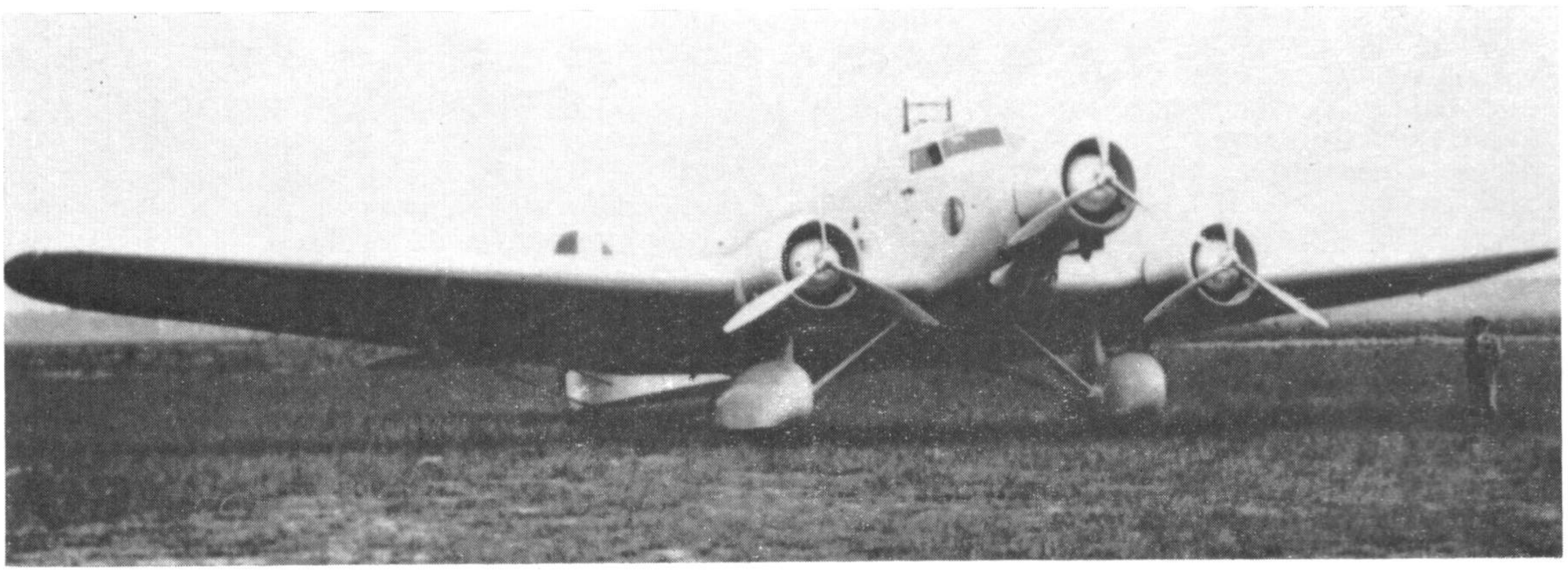
The three engines were fitted on steel tubular mountings with four attachment points; the cowlings varied as described above.

The fuel system comprised eight tanks; Piaggio and Alfa Romeo-powered machines had a total capacity of 795 Imp. gallons, while those powered by Gnôme-Rhône engines carried 968 Imp. gallons. Six tanks were built into the wing centre-section and two in the wing outboard sections. The three oil tanks had a total capacity of 49 Imp. gallons.

The three airscrews had a diameter of 11·15 ft. (Piaggio, Gnôme-Rhône) and 11·48 ft. (Alfa Romeo).

A twin-engined version designated S.M.81*bis* was developed with two 840 h.p. Isotta Fraschini Asso XI RC twelve-cylinder Vee engines and a glazed bomb-aimer position in the nose. This arrangement would seem to have offered the best operational layout for crew and bomb-load, but it was not sufficiently successful to justify production. Empty and loaded weights of this version were 14,960 and 22,800 lb. respectively; the length was 58 ft. 8½ ins. Performance included a maximum speed of 204 m.p.h., a cruising speed of 186 m.p.h., a service ceiling of 26,240 ft. and a range of 1,336 miles.

An S.M.81 with Gnôme-Rhône K.14 engines.



S.M.81 aircraft and crews lined up for inspection.

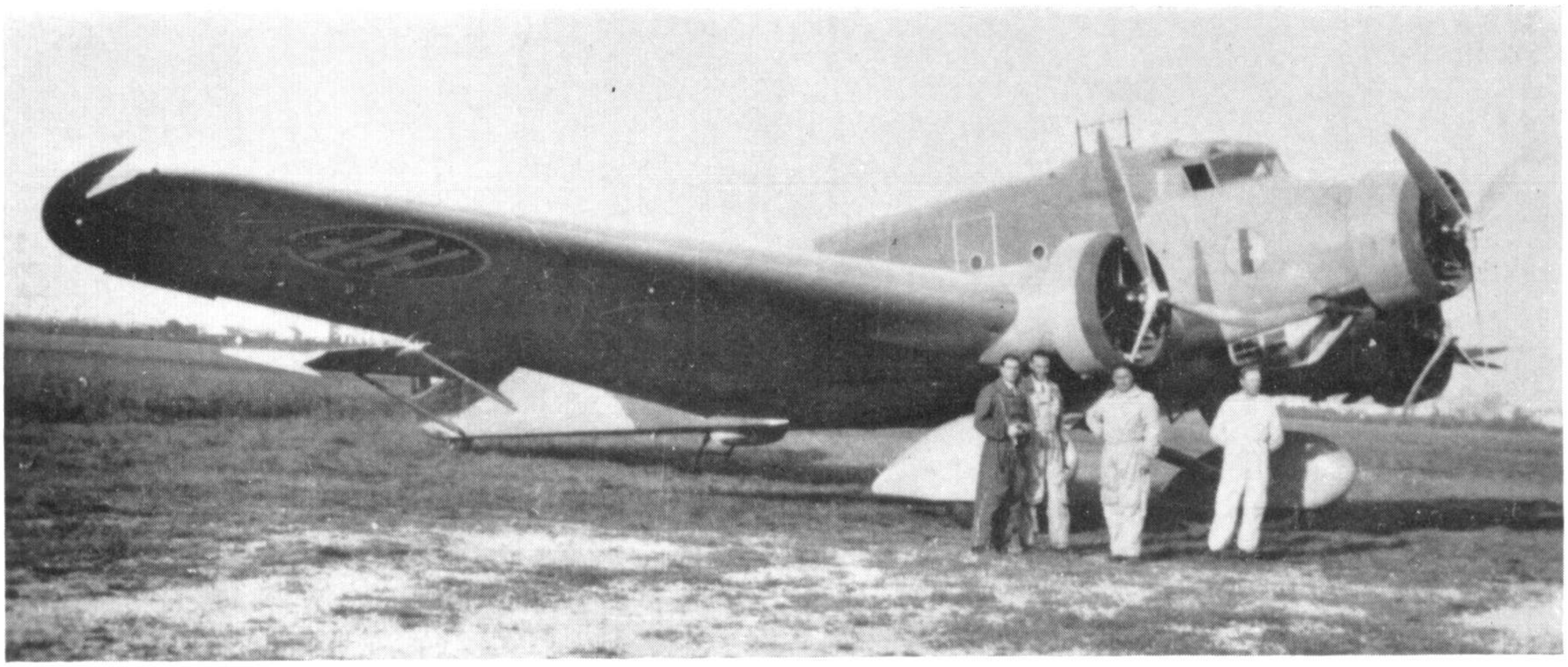
THE ETHIOPIAN CAMPAIGN

In the spring of 1935, the military preparations for the campaign in Ethiopia were set in train. At first established serving aircraft were sent, but in the following months more modern types, including the S.M.81, were delivered. In Ethiopia, the S.M.81 proved to be very effective, operating both as a bomber and troop transport, although not in such great numbers as the older Caproni Ca.133.

One of the first units to be equipped with the new bomber was the 7° *Stormo* at Lonate Pozzolo and, soon afterwards, the 9° *Stormo* at Rome Ciampino. In July 1935, these were followed by another unit at Lonate Pozzolo, the 13° *Stormo*, and the 15° *Stormo* based at Ferrara. From Ciampino a wing of S.M.81's with P.X engines was shipped to Eritrea, beginning operations in December 1935. These aircraft came from the series production batch, but all were fitted with the P.X, considered the most reliable engine available at the time having regard to the climatic conditions pertaining to East Africa. Photographs show several of these machines to have been fitted with four-blade airscrews.

Initially from Asmara and Gura, and later from Macalle, the S.M. 81's carried out highly effective missions, bombing enemy troops and reconnoitring enemy supply and communications lines. The aircraft were also used for supplying Italian ground troops, mainly

Alfa-Romeo 126-engined aircraft of the 16° Stormo. The machine in the left foreground shows the Metropolitan camouflage scheme to advantage.



An Alfa-Romeo-engined aircraft in Metropolitan camouflage scheme.

using aerial launching with parachutes. The S.M.81's remained in Africa at the end of the operation, a group of 36 aircraft joining Ca.133's in colonial police duties.

In March 1936, the 8° *Stormo* in Lombardy completed re-equipment with the S.M.81, as did the 10° *Stormo* at Bresso (Milan). The 11° *Stormo* converted to the K.14-engined S.M.81 in April 1936, while the 12° *Stormo*, awaiting the newer S.M.79, also received the S.M.81. At the end of 1936 a new unit, the 16° *Stormo*, was formed at Vicenza to receive the S.M.81 aircraft fitted with Alfa 126 engines. The 30° *Stormo Bombardamento Marittimo* at Poggia Renatico also converted to the type.

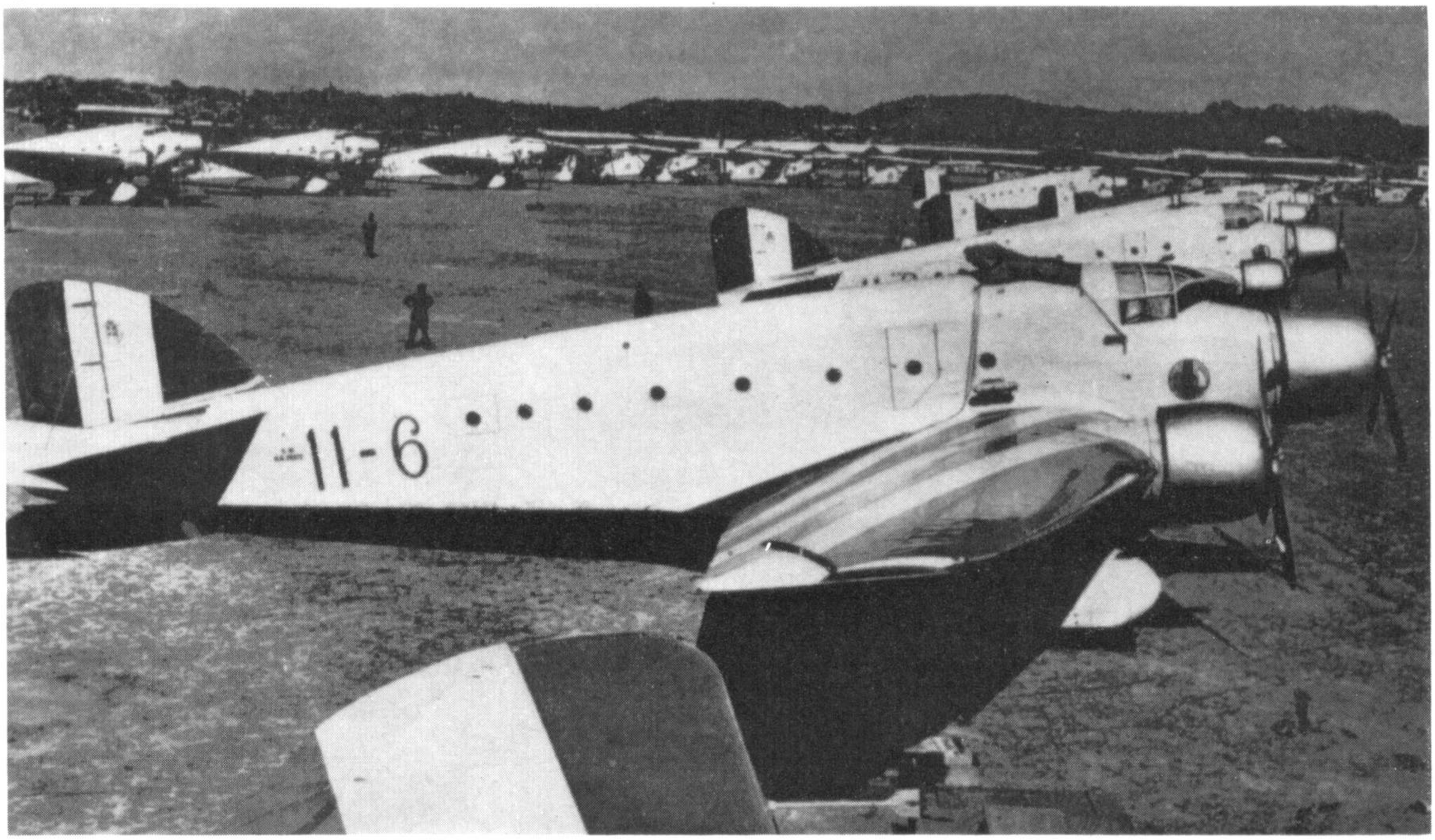
At the same time, the S.M.81 began its career as a transport aircraft and was also chosen as a V.I.P. transport. The armament was deleted and the cabin pleasantly furnished. An S.M.81 was allotted to His Majesty the King, another one to Benito Mussolini, one to the Chief of Air Staff, and others to various officials; all of these machines were included in a special unit called "P Wing", based at Centocelle airport (Rome). The machines were painted the usual white colour with the insignia of the appropriate official in gold near the door. The King made a special visit to Libya in his S.M.81 in 1938.

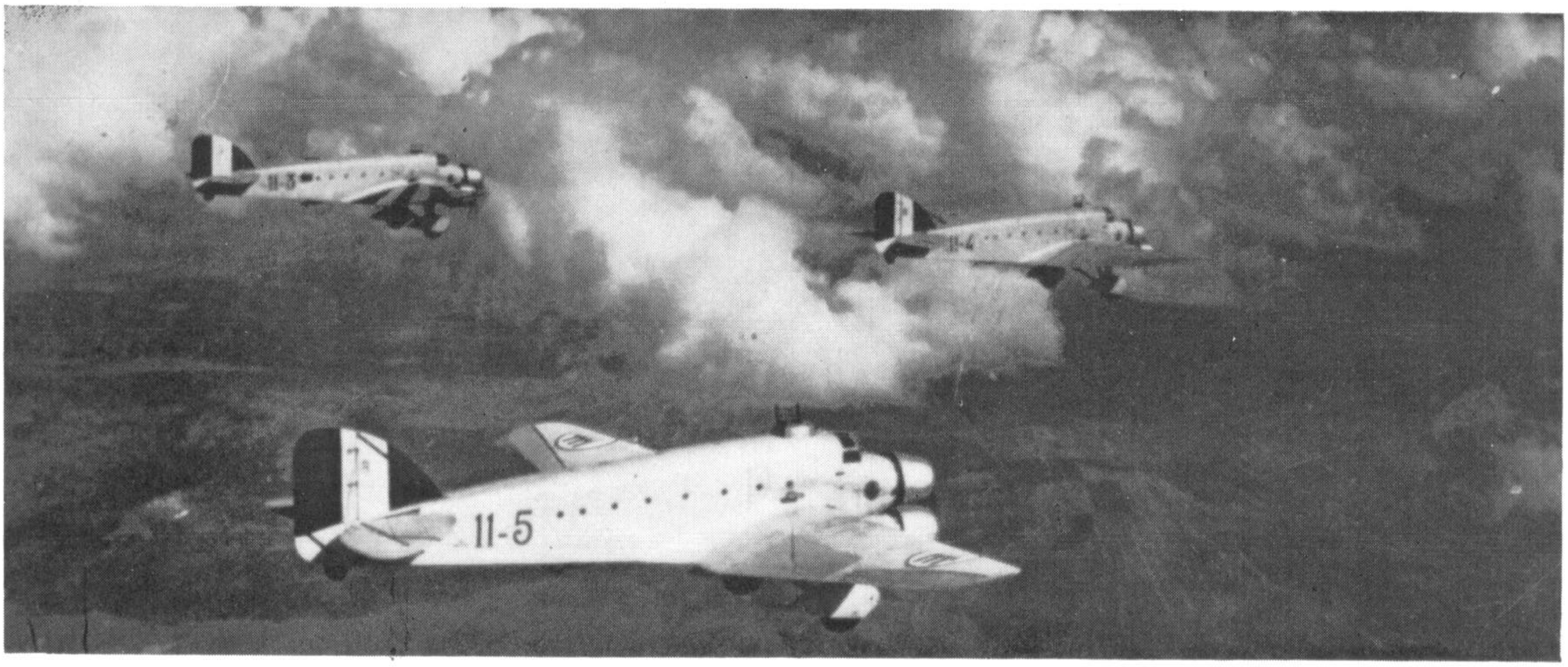
THE S.M.81 IN SPAIN

Meanwhile the Spanish Civil War had broken out; the operations in Ethiopia were just completed, when twelve S.M.81's left Elmas (Sardinia) *en route* for

(*continued on page 10*)

S.M.81 aircraft of the 11° Squadriglia, *with Piaggio P.X engines and four-bladed propellers. This shows the "anti-camouflage", radiating red stripes painted on the upper wing surfaces of aircraft taking part in the Ethiopian conflict, and on aircraft for East African or maritime use. In the background are S.M.81's of the 13°* Squadriglia *and Caproni Ca.111's of the 30°* Squadriglia.

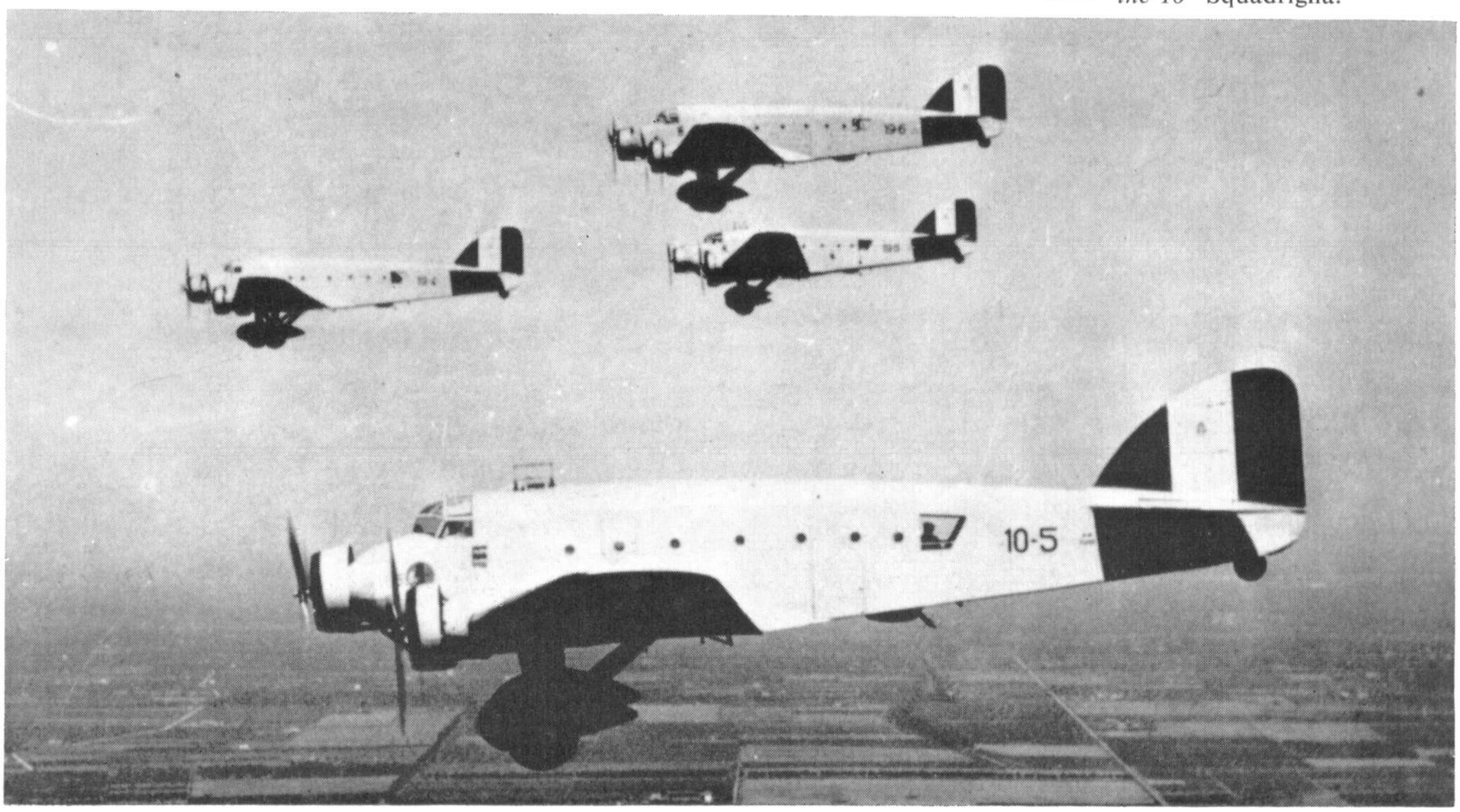


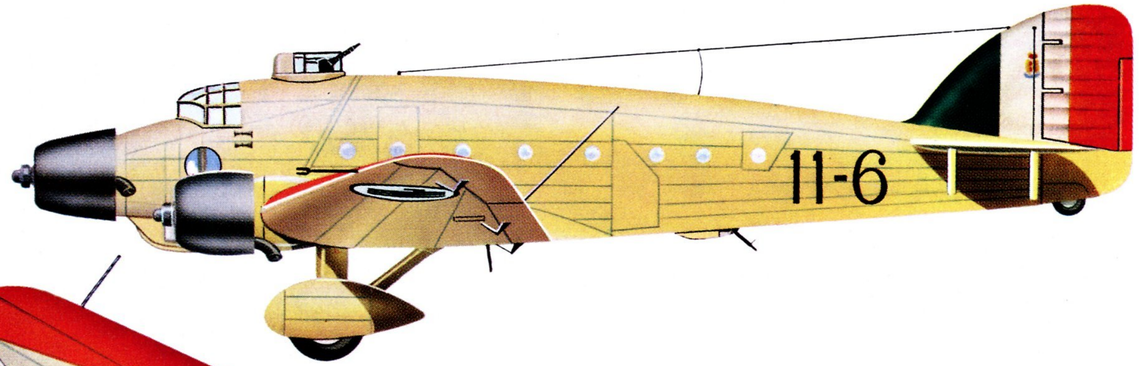


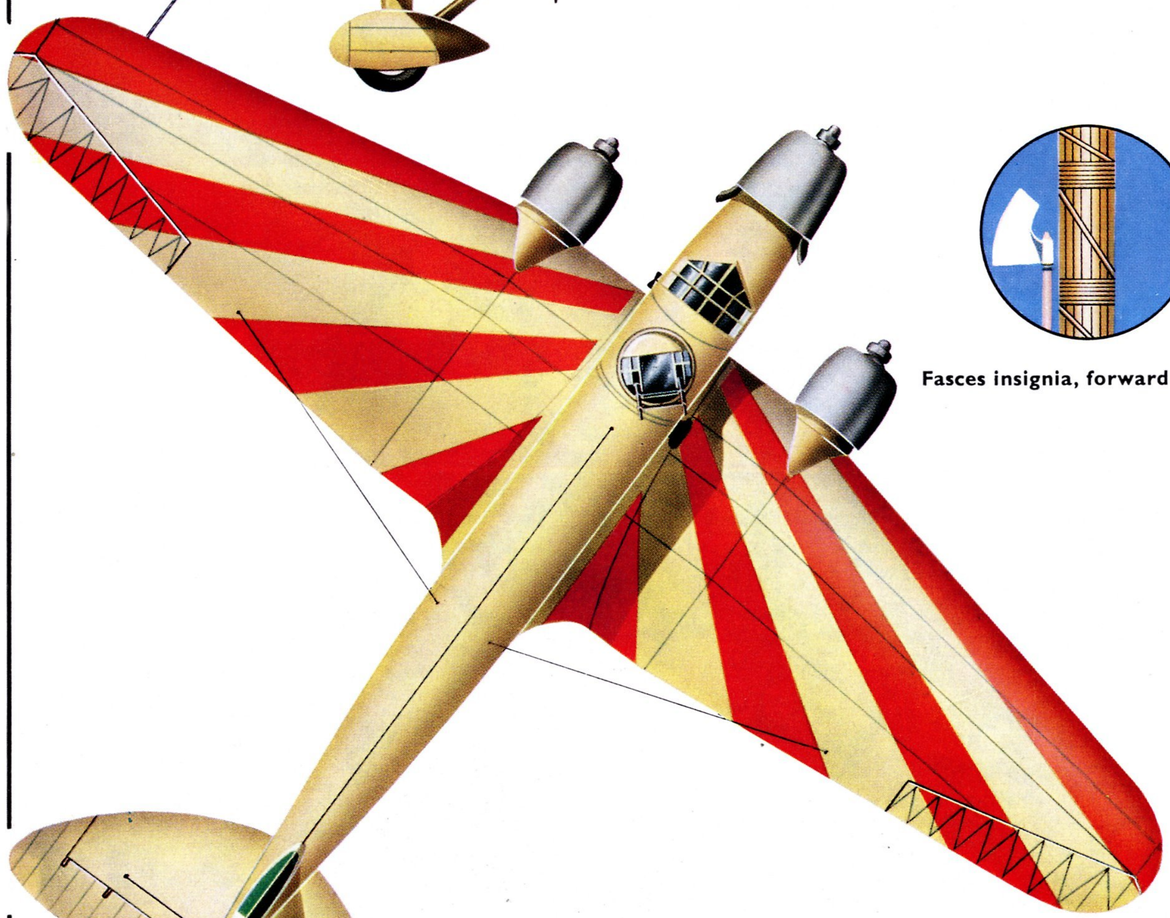
Above: *A trio of aircraft of the 11°* Squadriglia*; the most distant machine carries red "anti-camouflage" stripes for ease of visibility against vast expanses of sea or desert.*

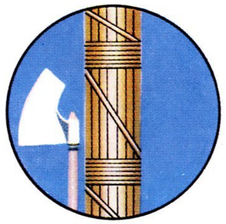
Left: *A Piaggio P.X-engined S.M.81 with the undercarriage wheel fairings removed.*

Below: *A formation of Alfa-Romeo 125-engined aircraft of the 10°* Squadriglia.

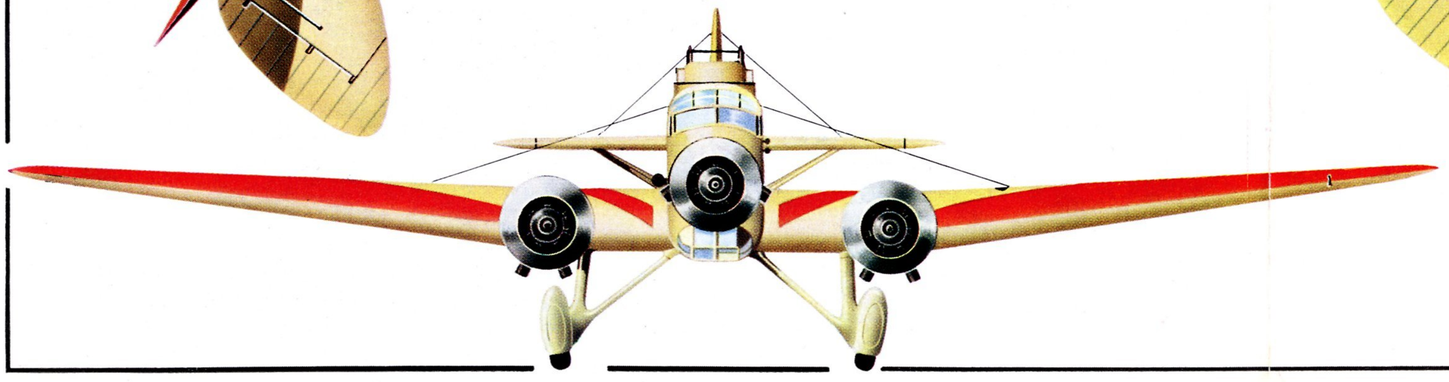


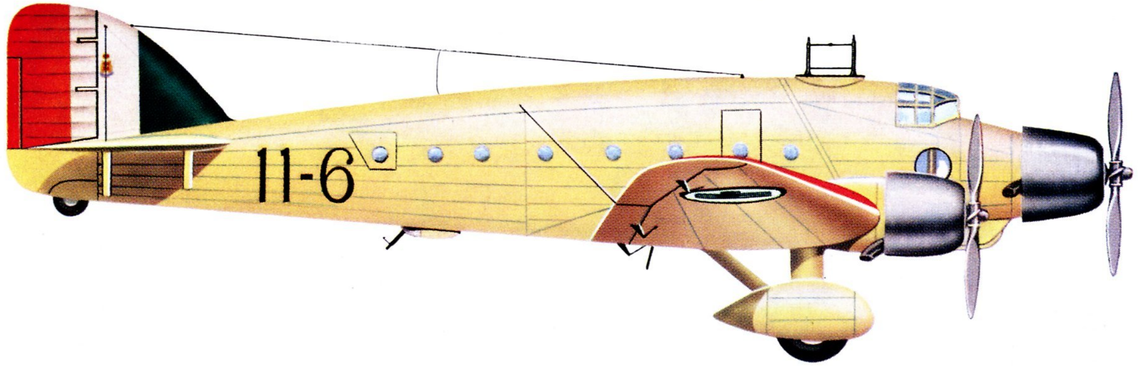




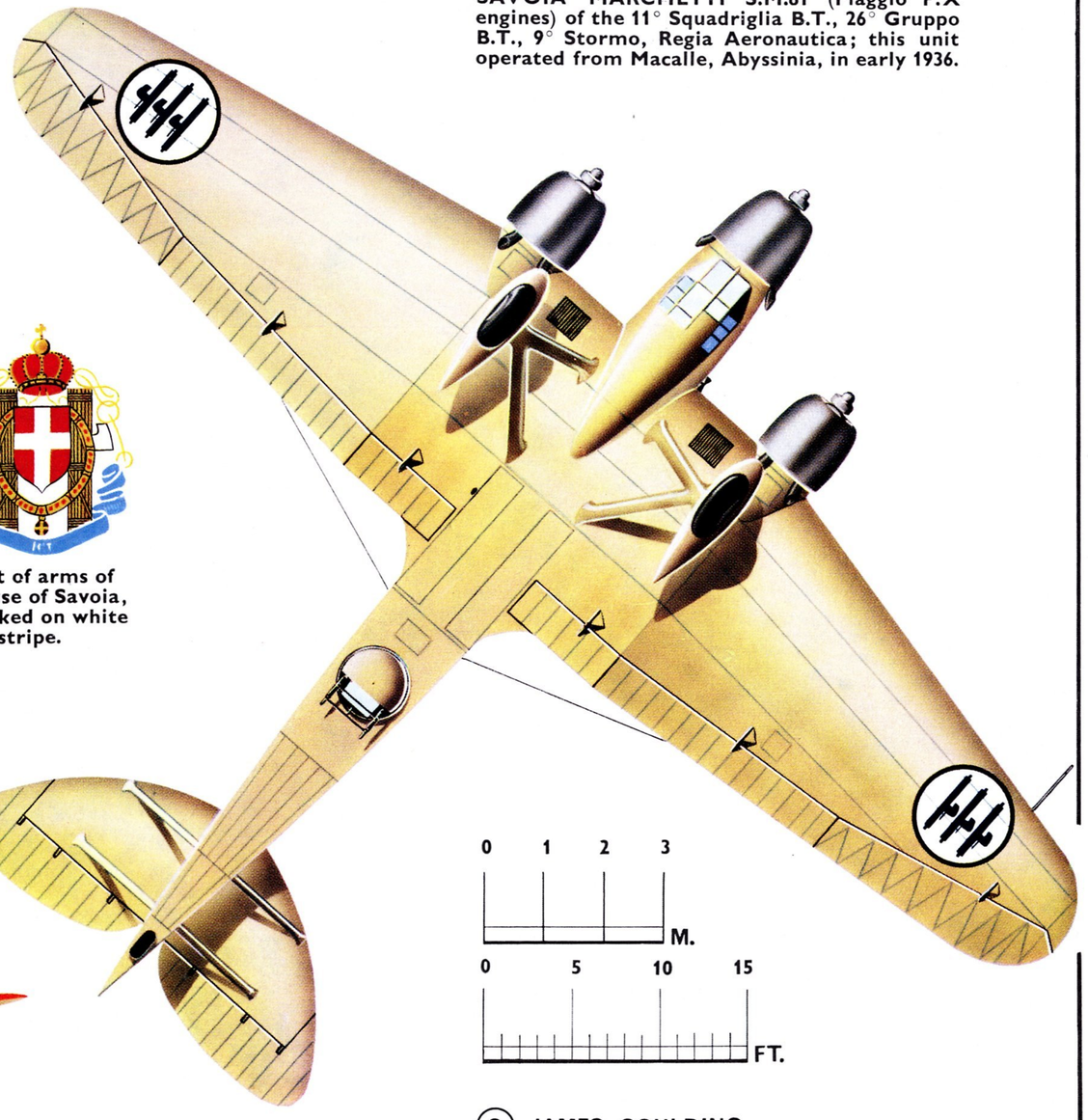


Fasces insignia, forward fuselage.



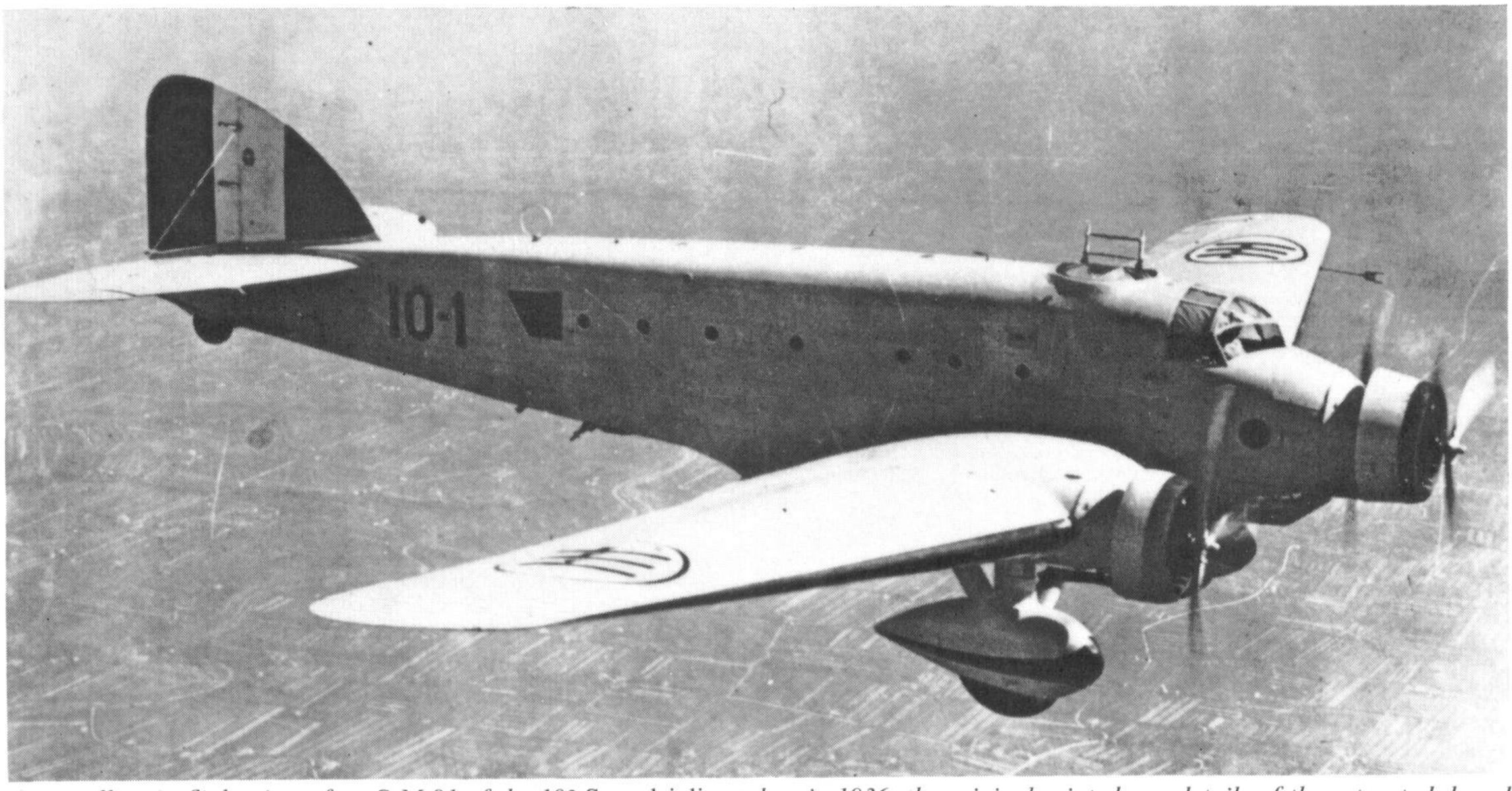


SAVOIA MARCHETTI S.M.81 (Piaggio P.X engines) of the 11° Squadriglia B.T., 26° Gruppo B.T., 9° Stormo, Regia Aeronautica; this unit operated from Macalle, Abyssinia, in early 1936.



Coat of arms of House of Savoia, marked on white tail stripe.

© JAMES GOULDING



An excellent in-flight view of an S.M.81 of the 10° Squadriglia; *taken in 1936, the original print shows details of the retracted dorsal turret and the shade drawn over the cockpit rear windows to reduce glare from the sunlight.* (Photo: G. Cattaneo via R. Ward)

Melilla in Spanish Morocco, where General Franco was concentrating his troops before transferring them to the Continent. Nine of the aircraft reached Melilla on 28th July 1936 under the command of Gen. Bonomi. This was the first unit of the "*Aviacion del Tercio*", which played a prominent part in the conflict, being widely used in bombing communications centres, harbours and industrial sites.

The S.M.81's commenced operations on 5th August 1936, when two of them bombed a Government (Republican) cruiser which was attacking Larache. Operating from Tetuan, they subsequently cleared the waters between Spanish Morocco and the Continent; flying low over the Nationalist fleet, the S.M.81's escorted the troop-ships from Ceuta to Algeciras. During this operation the S.M.81's flew about six hours and forty minutes. The 24° and 25° *Gruppo* "*Pipistrelli*" (Bats) actively participated in the conquest of Santander and Bilbao, and carried out bombing raids on Mediterranean ports.

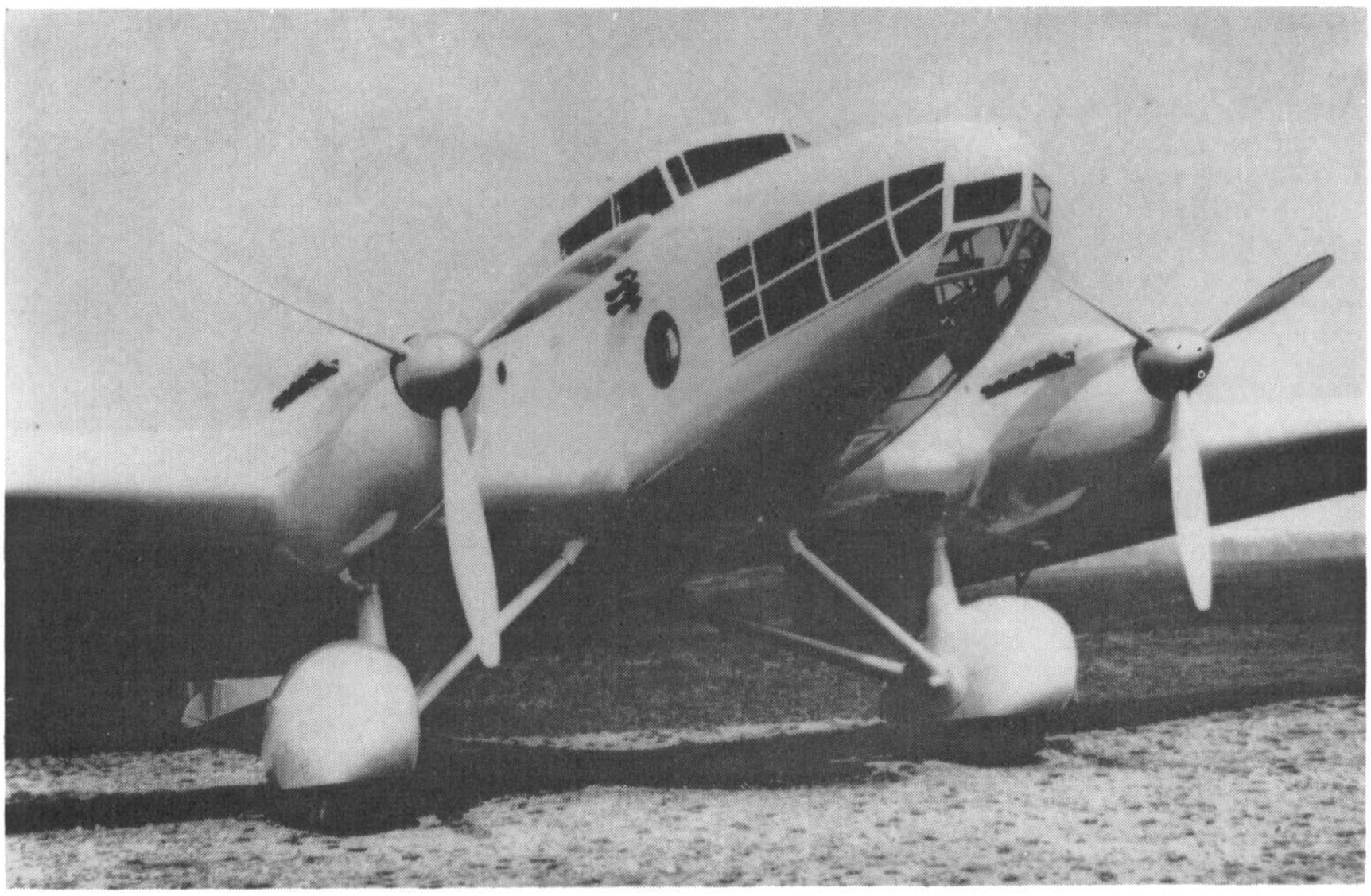
During the Ebro battle, which began on 25th July 1938, the Italian bombers played a prominent rôle, over 20 S.M.81 and 40 S.M.79 aircraft taking part.

THE HOME FRONT

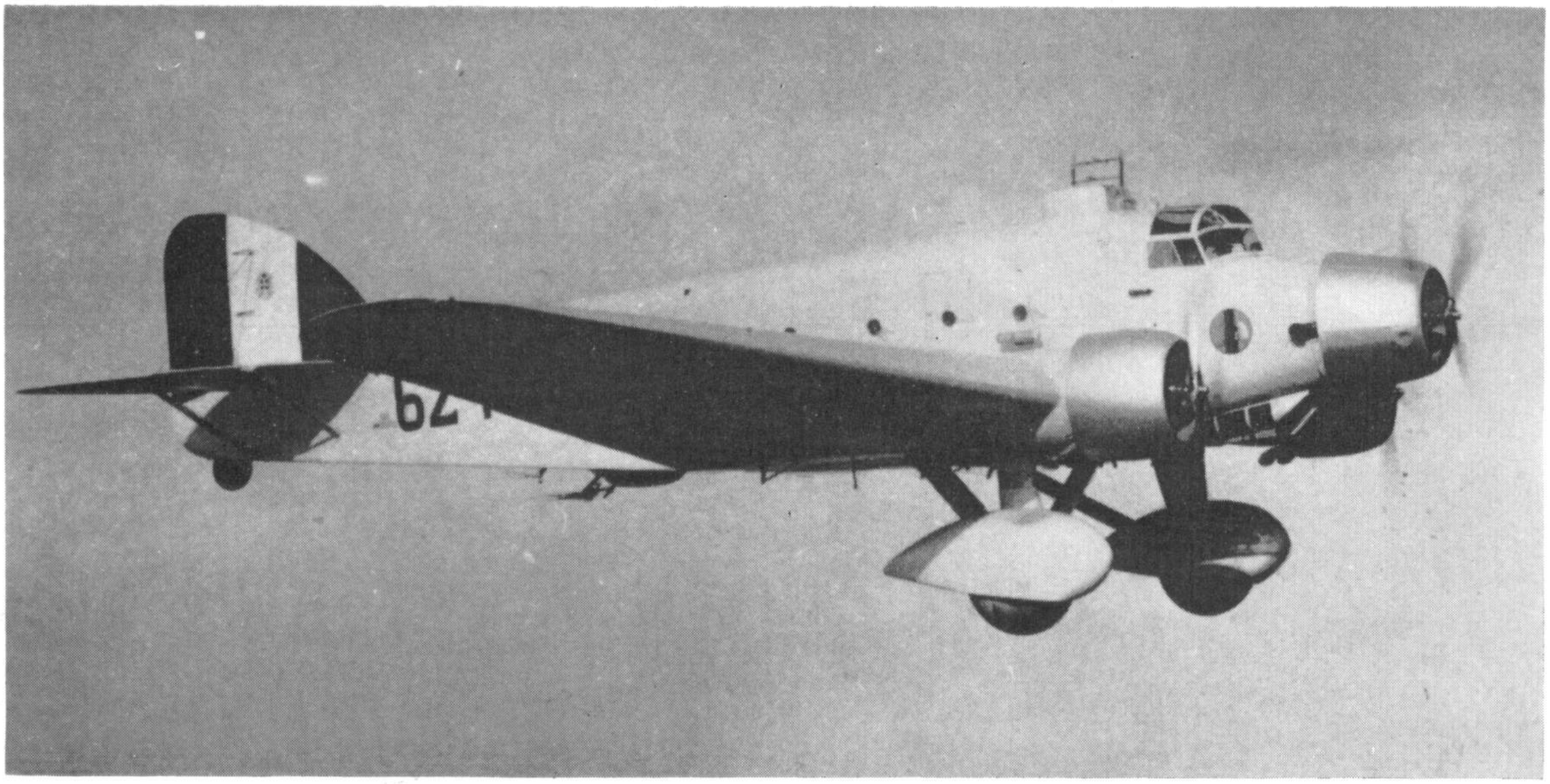
Meanwhile, in Italy, the S.M.81 was not only serving in home-based squadrons, but also undertaking experimental work; an aircraft of the 9° *Stormo* was again tested with two torpedoes, first at Sarzana and then in Naples and Gorizia. The machine was exhibited in this configuration at the Milan Aero Show in the spring of 1937.

In 1936, the 14° and 15° *Stormo* were transferred to Libya, both of them equipped with the S.M.81 fitted with K.14 engines featuring a special tropical intake for operations from desert fields. The 14° *Stormo* (46° and 47° *Gruppi*) was initially based at Castelbenito (near Tripoli) and, in December 1936, the 15° *Stormo* was based at Benina (Benghazi).

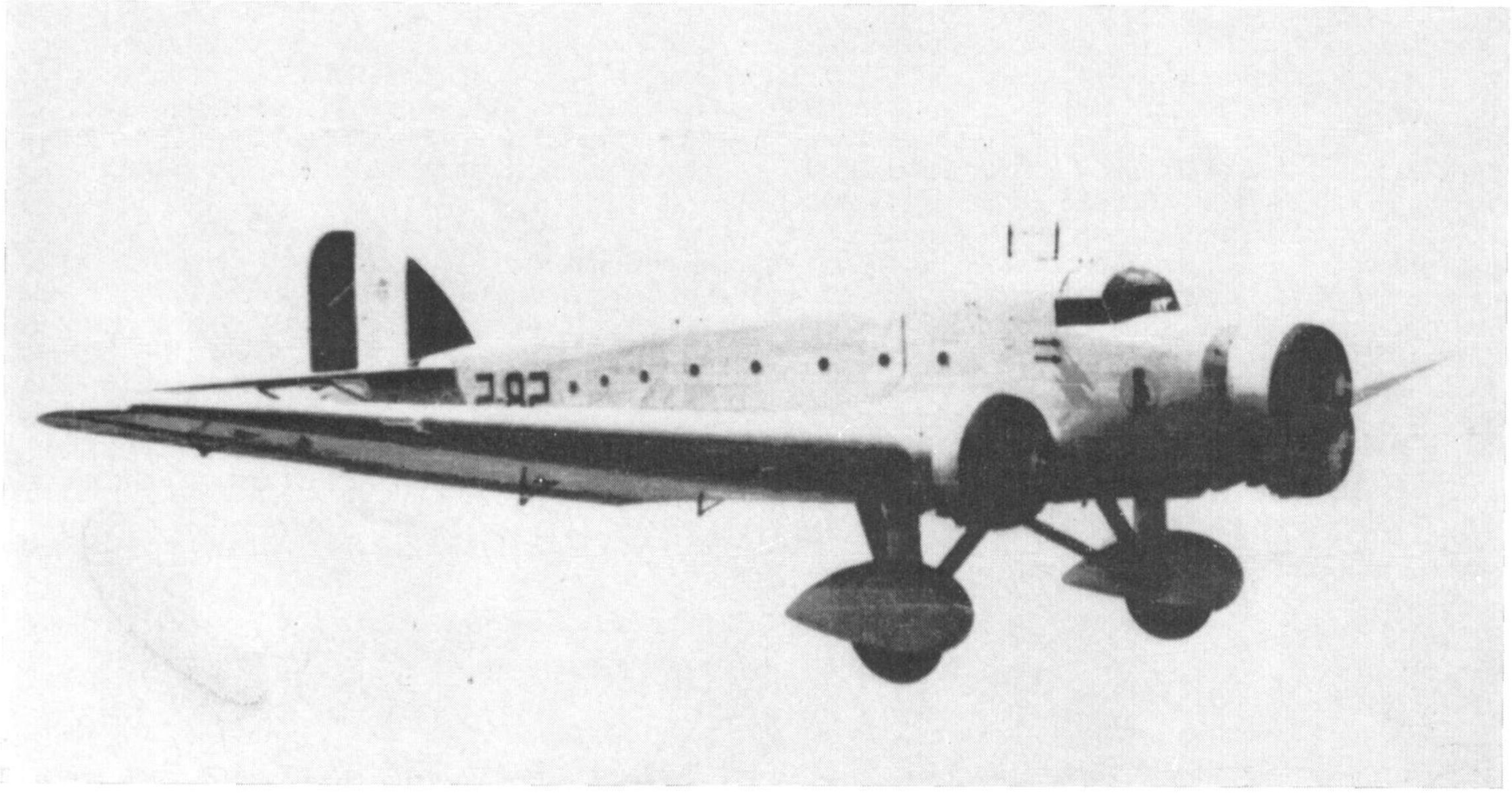
Two more *Stormi* were created in Italy during 1937, the 53° at Capodichino (Naples) with P.X-engined S.M.81's and the 34° at Catania. These were followed in 1938, by the 32° *Stormo* at Elmas and



A close-up of the S.M.81bis prototype, showing the glazed nose containing the bomb-aimer's position; this aircraft was powered by two 840 h.p. Isotta Fraschini Asso XI engines.



Above: *P.X-engined S.M.81 and*, below: *an Alfa-Romeo-engined machine, illustrating the effect of different engines on the cowling contours. The latter print appears to have been reversed.*



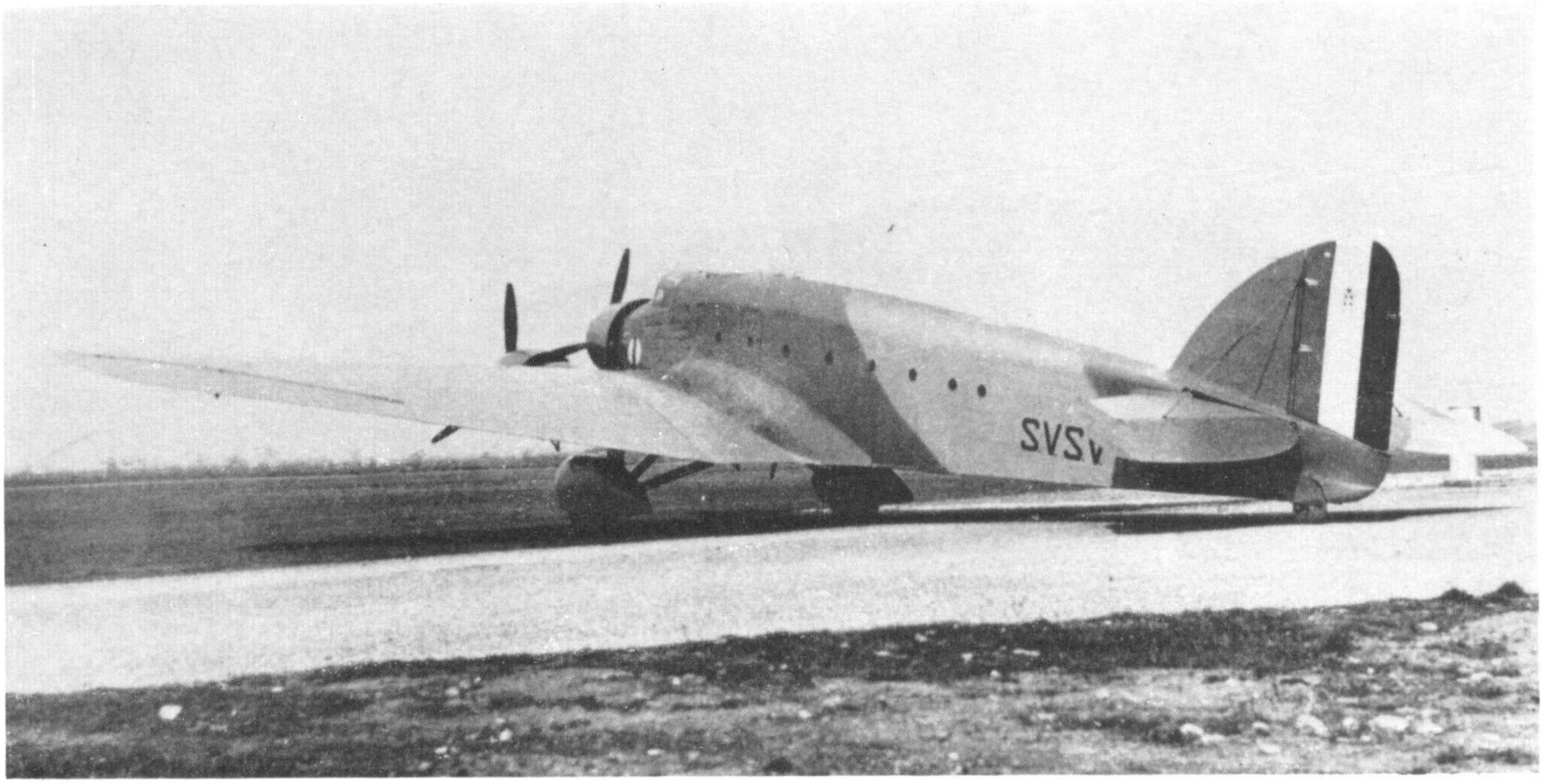
the 36° *Stormo* at Borgno Panigale (Bologna).

Various foreign crews were trained on the S.M.81 including some from Austria, Germany, China, Uruguay and Venezuela. Despite its success at home, the S.M.81 was not sold abroad as were other contemporary Italian aircraft; one solitary example was exported to China in 1937.

The personal aircraft of Benito Mussolini during this period was an S.M.81 assigned from the 9° *Stormo* and named "*Tartaruga*" (Tortoise). This was piloted by the dictator in person and was the first machine to be modified to fit a Lanciani turret with a single 12·7 mm. gun instead of the usual two 7·7 mm. guns.

By 1938 the S.M.81 was already obsolete in view of the arrival of such types as the S.M.79. The S.M.81 still had an important rôle to play however, and in the interests of standardisation it was decided that the Alfa 126-engined S.M.81's should be maintained in Italy, those with the K-14 in Libya and those with the P.X. in East Africa. A Piaggio assistance service was established in Addis Ababa to assure maintenance and overhaul of these engines. Some inconvenience was encountered in Libya by the two *Stormi* equipped with Gnôme-Rhône K.14-engined aircraft owing to a lack of spare parts. This situation was improved when Isotta-Fraschini produced the engines under licence, although the efficiency of the Italian version was less than that of the original French version. An interesting experiment was carried out in Libya by S.M.81's of the 15° *Stormo*, employed by the "*Battaglione Libico*" for the dropping of paratroops.

On 1st April 1939, the 37° *Stormo* was formed at



An S.M.81 of the Scuola Volo Senza Visibilita (*Instrument Flying School*) *based at Littoria; this photograph was taken in 1940.* (Photo: via R. Ward)

Lecce, and together with the 33° *Stormo* this unit took part in the occupation of Albania. These S.M. 81-equipped units ferried troops from sourthern airfields to Tirana; the 37° and 38° *Stormi* were subsequently based at Tirana. At this time, the 39° *Stormo* (S.M.81's with Alfa 126 engines) was based at Rodi (Aegean Islands).

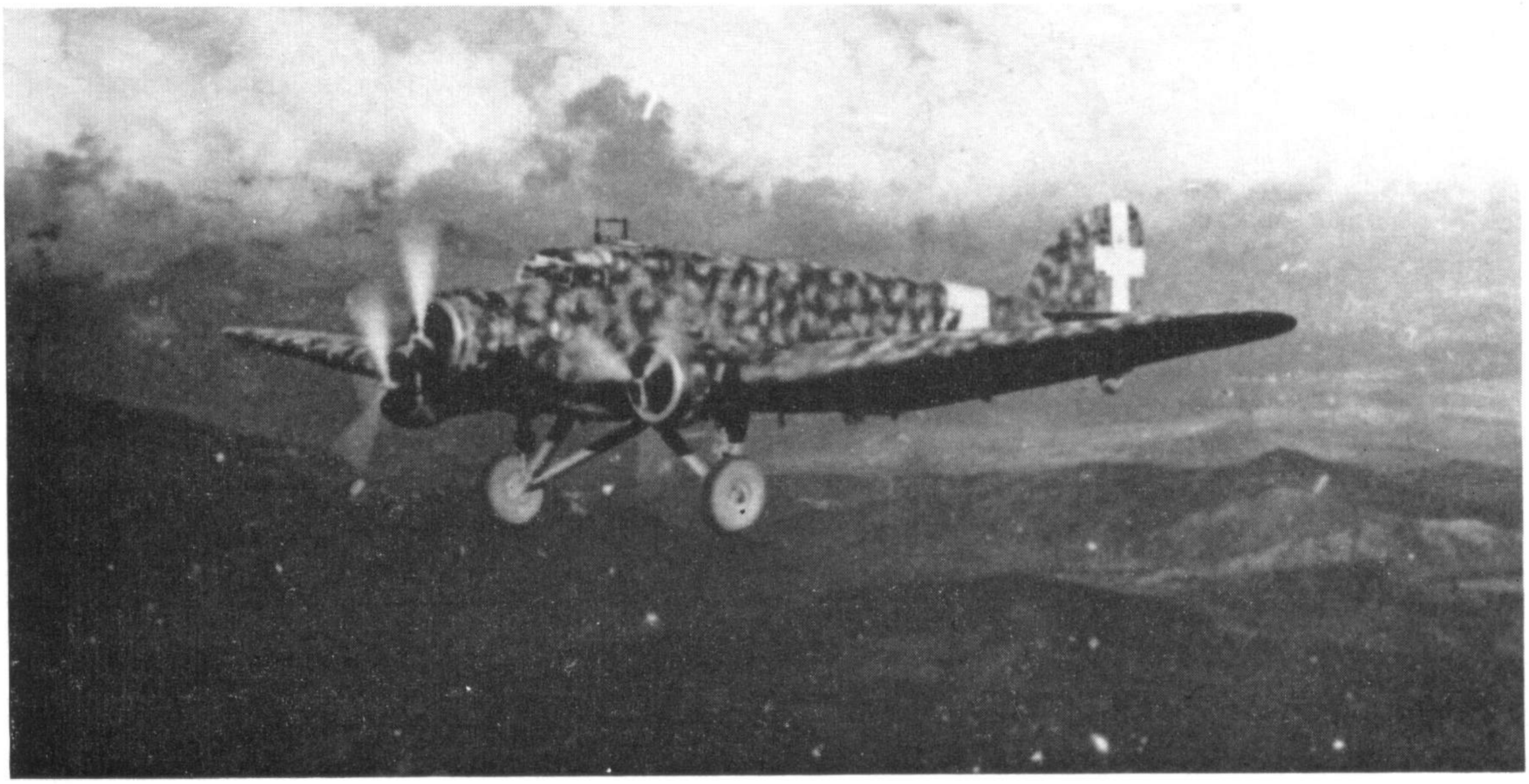
At the end of 1939, five *Stormi* were still equipped with the S.M.81, with 276 machines in service in Metropolitan Italy, Albania, Libya and the Aegean Islands, while a further 36 of this type were stationed in Ethiopia. The two Libyan squadrons began to convert to the S.M.79 in 1940, while a special unit for the "*Battaglione Paracadutisti Libici*" was transferred to Tripoli with some S.M.81's formerly of the 15° *Stormo*. A special version was operated by the "*Scuola Volo Senza Visibilita*" (Instrument Flying School) based at Littoria. As front-line units were re-equipped with more modern types, the S.M.81 was increasingly relegated to the transport rôle.

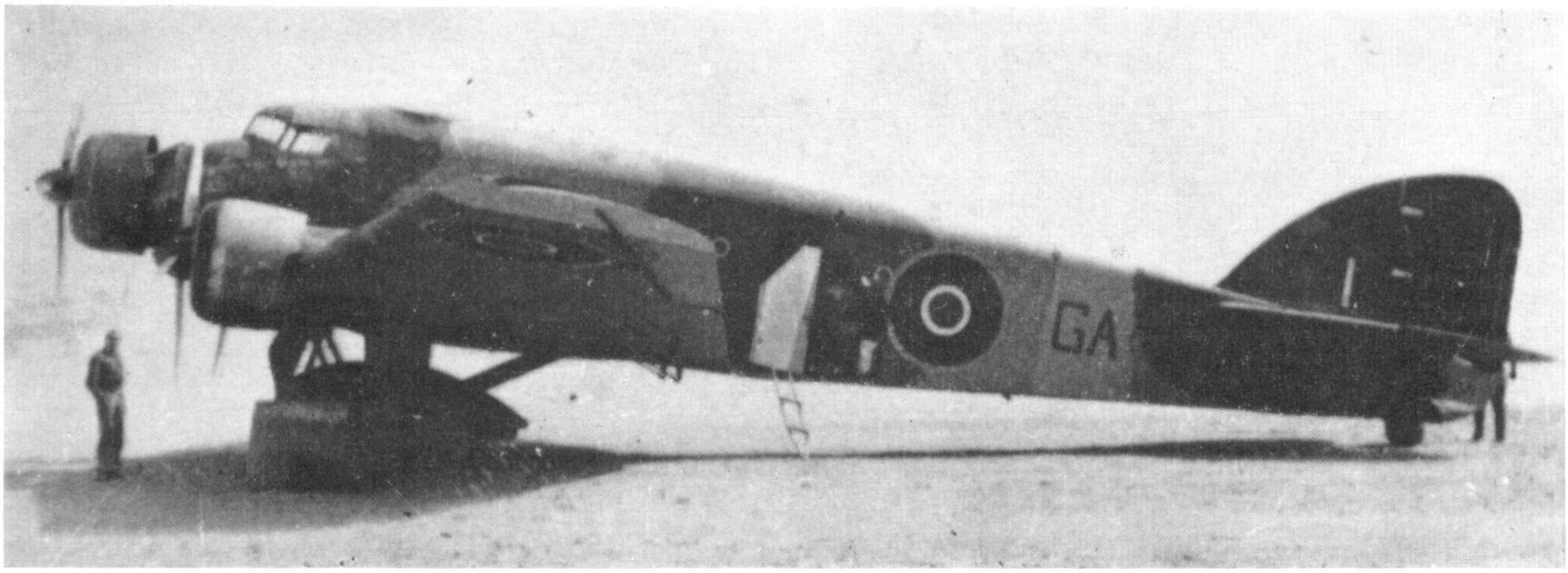
WARTIME SERVICE

At the outbreak of the Second World War, 397 S.M.81's remained in service, but the *Regia Aeronautica* entered the war (June 1940) with only 304 serviceable aircraft of the type. Of these, 147 equipped units in Italy, the Aegean Islands and North Africa, 59 equipped units in East Africa (42 serviceable), while the remainder served with transport units.

The first S.M.81's to go into action were those based

An S.M.81 of the 38° Stormo *flying over Albania during the first phase of the war against Greece. The undercarriage wheel fairings have been removed and the camouflage scheme is noteworthy.*





This particular S.M.81 was captured in North Africa by No. 112 Sqdn., R.A.F., who marked it with their identification code letters "GA".
(Photo: via R. Ward)

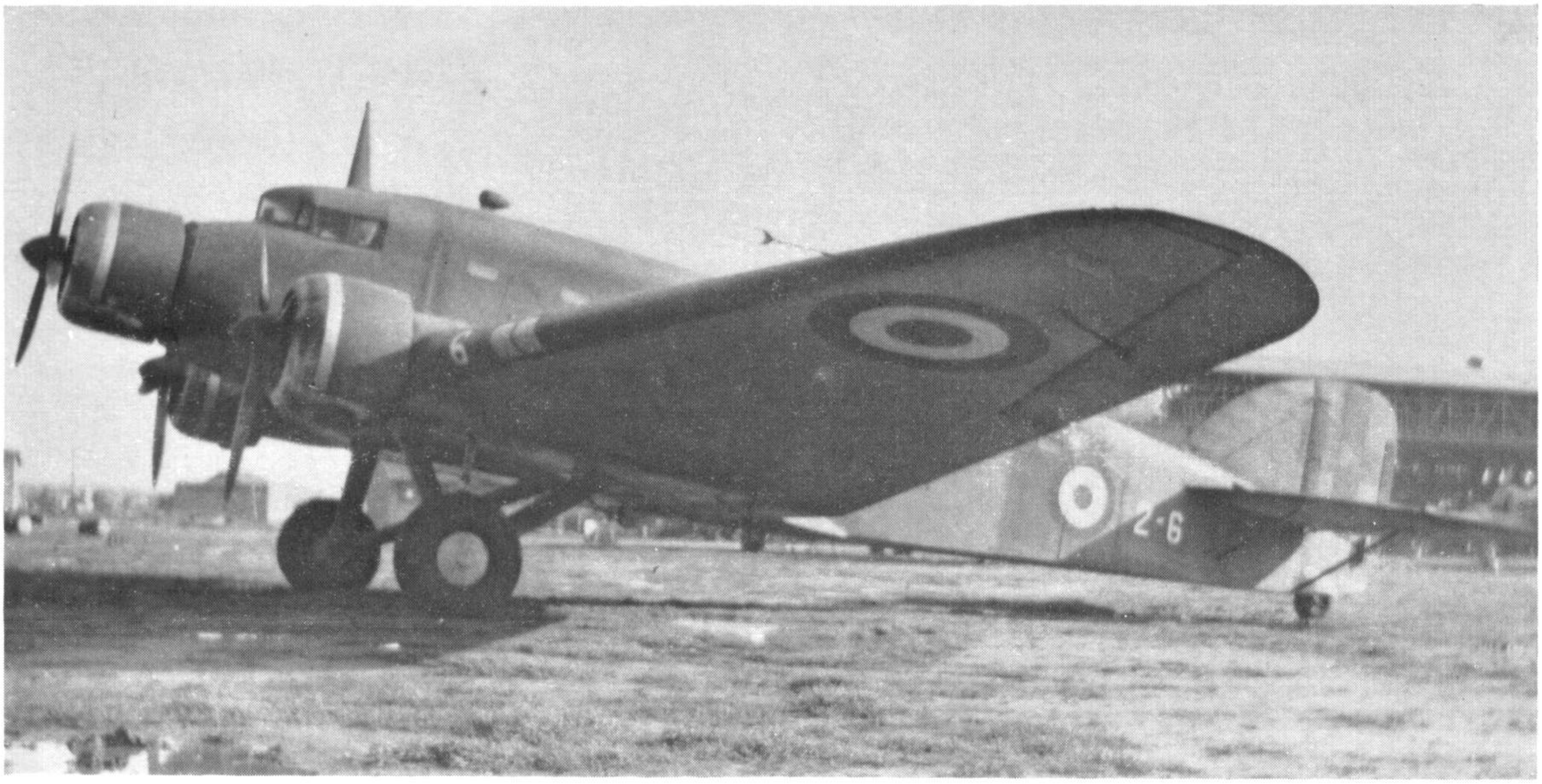
in East Africa, taking part in the bombardment of Aden (4° *Gruppo* based at Scenele and 29° *Gruppo* from Asseab). They also intercepted enemy naval traffic and participated in such land operations as the conquest of Somaliland. In September 1940, the "*Pipistrelli*" were particularly active attacking convoys and bombing the British bases of Khartoum and Port Sudan. Losses were heavy during these missions and, as no replacements were available, the efficiency of the squadrons became very low. By 10th January 1941, only 26 S.M.81's were serviceable on strength in East Africa and by 1st February only six of these were serviceable.

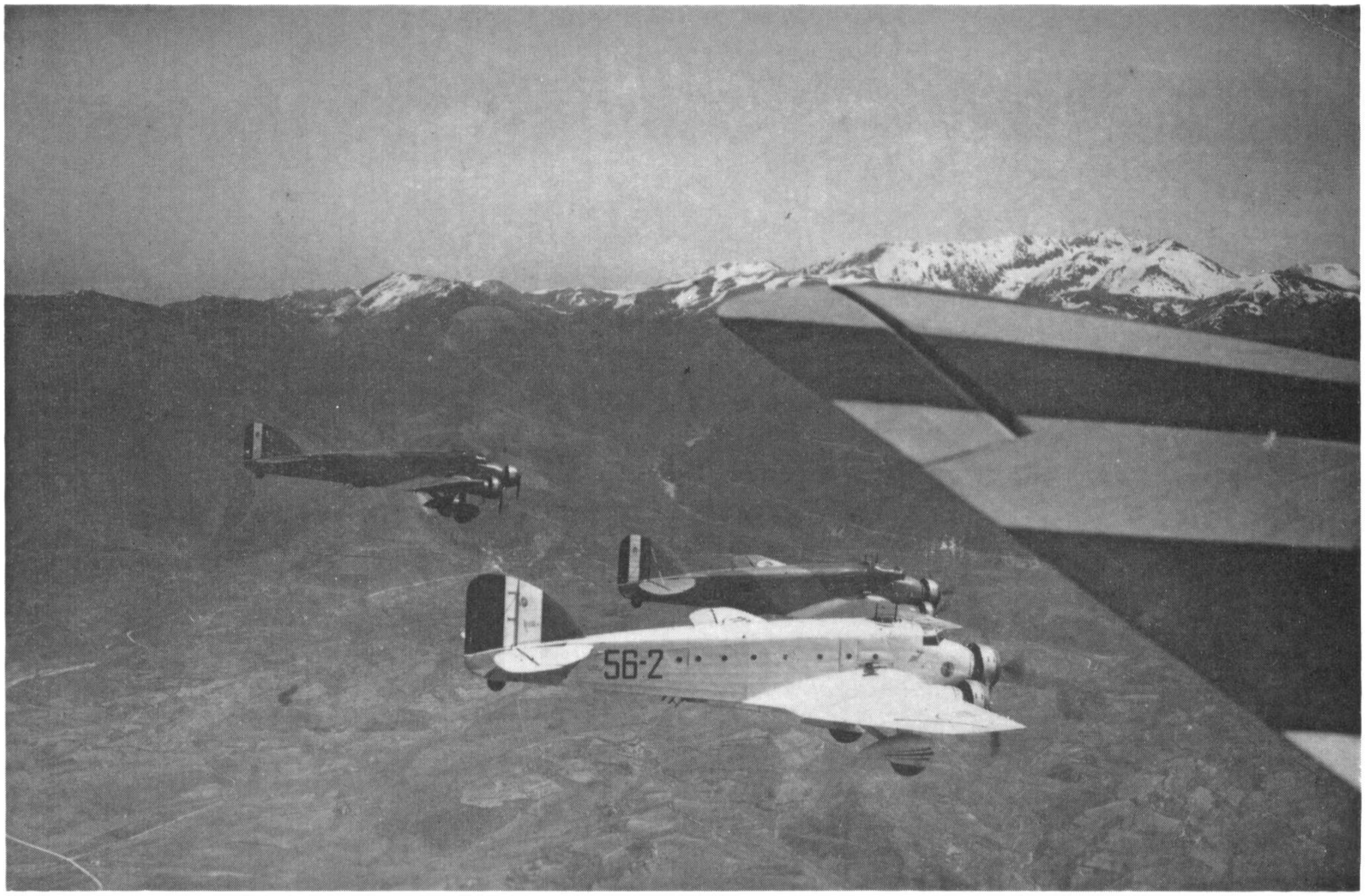
In the Western Desert were the 14° *Stormo* at El Adem, south of Tobruk, with 21 S.M.81's, and the 15° *Stormo* with some S.M.81's engaged solely on transport duties. The enemy reacted vigorously and to avoid complete destruction, the 45° *Gruppo* was transferred from El Adem to Berka (Benghazi), while the 44° *Gruppo* was re-equipped with S.M.79's.

During the initial phase of the Mediterranean battle, the old bombers took a prominent part in the attack against the Royal Navy. In the famous Punta Stilo battle the first attack (8th July) was made by eleven S.M.81's of the 39° *Stormo* operating from Rodi in the Aegean. Three other attacks were delivered on the following day by aircraft of the 37° *Stormo* (40° *Gruppo*). On 17th July the S.M.81's of the 39° *Stormo* seriously damaged the British warship *H.M.S. Havoc*.

The 39° *Stormo* was one of the most active Italian bomber units during this phase of the war against naval objectives. On the night of 22nd June it made its first raid on Alexandria with 12 S.M.81's; another raid was made on 7th July, this time with 11 S.M.81's. More raids followed in July. On 11th August the same unit attacked Port Said and other objectives in the Suez Canal Zone. The 92° *Gruppo* of the 39°

One of four S.M.81's acquired by Co-belligerent forces in Southern Italy after the armistice in September 1943; this aircraft has had the armament and wheel fairings removed. Note the streamlined radio aerial mast fairing and the D/F housing on top of the fuselage.
(Photo: F. C. Dickey via R. Ward)





S.M.81's of the 56° Squadriglia. *Three types of early-style paint scheme are visible: the Metropolitan camouflage; cream; and, in the foreground, red stripes on the upper wing surfaces.* (Photo: via R. Ward)

Stormo was at this stage converting to S.M.79's but the 56° *Gruppo* continued with the S.M.81 and made more raids on Alexandria in September and October.

The two *Stormi* operating on the Adriatic and Greek coasts, apart from training and eventual action against naval traffic, were also employed on coastal patrols in the anti-submarine rôle.

The 54° *Gruppo* of the 37° *Stormo* was transferred from Italy to Benghazi with 14 S.M.81's. Meanwhile the 116° *Gruppo* entered the same *Stormo* but was equipped with B.R.20's. In Libya the 54° *Gruppo* was employed almost exclusively on night operations owing to the great element of risk in using its slow bombers in daylight. This unit made a significant contribution to the Italian advance on Sollum and Sidi Barrani and it continued to operate until the retreat to El Agheila. In March 1941 it was re-armed with S.M.79's and the remaining S.M.81's transferred to the transport units serving on the Libyan front.

At the start of the conflict at Benghazi, five S.M.81's were converted into ambulance aircraft, four being allotted to 16° *Squadriglia* (2° *Gruppo Aviazione Presidio Coloniale*) which also used three standard S.M.81's for freight-carrying on the southern route, supporting bases in the Sahara Desert. In 1940 these aircraft flew 587 wounded troops from the front line to Benghazi and also made liaison flights to Sicily and Puglie, delivering their cargo direct to Italy.

Meanwhile a regular *Reparto Trasporti* (Transport Flight) was formed—the 5° *Squadriglia*—initially equipped with S.M.81's and S.M.75's. The 145° *Gruppo Trasporti* was also formed, this unit also having some S.M.81's including the K.14-engined version.

For the operations against Greece on 28th October, 1940, the *Comando Aeronautica Albania*, based at Argirocastro had the 38° *Stormo* with 24 S.M.81's (Alpha 162 engines) at Valona and the 105° *Gruppo* (37° *Stormo*) based at Lecce with 18 S.M.81's, a few S.M.79's, two squadrons of CR.32's and a number of reconnaissance Ro.37 biplanes. Operations of the

UNITS OF THE *REGIA AERONAUTICA* EQUIPPED WITH THE S.M.81 AT THE OUTBREAK OF WAR

Gruppo	Stormo	Squadriglie	Locations
4° bis	7° bis (autonomo)	14°-15°	East Africa (disbanded March 1941)
28° bis	8° bis (autonomo)	10°-19°	East Africa (Harrar)
29° bis	9° bis (autonomo)	62°-63°	East Africa
39°	38°	51°-69°	Tirana (Albania) (subseq. on B.R.20)
40°	38°	202°-203°	Lecce (Italy)
44°	14°	6°-7°	East Africa (transferred for training)
45°	14°	2°-22°	El Adem (Libya)
47°	15°	53°-54°	Castelbenito (Libya)
54°	37°	218°-219°	Lecce (Italy)
55°	37°	220°-221°	Lecce (Italy)
56°	39°	222°-223°	Rodi (Aegean Islands)
92°	39°	200°-201°	Rodi

Transport Units

Gruppo	Stormo
53°	18°
145°	18°

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S.M.81, 218 Squadriglia B.T.,
54 Gruppo B.T.,
16 Stormo B.T.;
Libya, February 1941.

54 Gruppo B.T.

nocte
lavente

S.M.81 ambulance; Libya, 1941.

Rudder insignia,
coat of arms of
House of
Savoia.

S.M.81 transport;
Tummo, Libyan Sahara, January 1942. Transport support
for *Luftwaffe* bomber action over Lake Chad.

Wing insignia, black
fasces on white ground.

S.M.81, 202 Squadriglia B.T.,
40 Gruppo B.T., 38 Stormo B.T.;
Albania, January 1941.

S.M.81, 600 Squadriglia Transporto;
North Africa, Spring 1943.

S.M.81, 245 Squadriglia Transporto, 56 Gruppo Transporto;
Kantikinirowka, Russia, December 1943.

R.S.I. fuselage insignia.

S.M.81, Bomber and Transport Command, Italian
Co-Belligerent Air Force; Lecce, Italy,
November 1943.

S.M.81, Transport Group "Terracciano",
Aviazione della R.S.I.; Russian Front, 1944.

S.M.81's, however, were restricted to supply and night bombing. The 56° *Gruppo*, operating from Viterbo, deployed its S.M.81's in the Balkans (Albania, Yugoslavia and Greece).

In January 1942 the 18° *Gruppo* was transferred to Orvieto, the 247° *Squadriglia* being assigned to C.S.I.R. units based at Otopeni (Bucharest) airport, while the other two *squadriglie* were based at Stalino in Russia.

The tragic (for the Axis) winter of 1942/43 saw enormous losses on both fronts and the *Reggia Aeronautica* managed to save only a few of its old S.M.81's.

Before the retreat of the C.S.I.R. on the Russian front, Operation C.3 was launched against Malta and to the S.M.81's of the 18° *Stormo* was assigned the task of landing on Malta's airfields to deliver troops of the "*La Spezia*" Division. The offensive against El Alamein prevented the execution of Operation C.3 and the S.M.81's were called upon instead to transport the "*Folgore*" Division in Egypt and the "*La Spezia*" Division in the Sirtica region.

On the North African front the S.M.81's continued to do useful work, but at the end of December 1942 a complete S.M.81 unit at Lampedusa was lost as a result of attacks by Beaufighters and Bostons. Notwithstanding their very low speed—the *Pipistrelli* were also dubbed "*Lumace*" (Slugs)—the S.M.81's took part in the evacuation of Tunisia: in 1942 the aircraft of the 18° *Stormo Trasporti* made 4,105 flights (10,860 hours) transporting 28,613 troops and 4·5 million pounds of cargo.

In Russia, the *squadriglie* of the *Regia Aeronautica* were withdrawn to Odessa airport at the end of February 1943 and the 245° returned to Italy; the other units remained at Odessa until April, 1943.

During this period the supply missions to Pantellaria and Lampedusa were made almost exclusively by the S.M.81's, as they were the only aircraft able to operate safely from the island's airfields. Until the surrender of Sicily, the S.M.81's made several night flights, being parked underground during daylight at Pantellaria.

A task undertaken by the S.M.81 which has still to be mentioned was that of towing gliders; in 1942 a special assault glider unit was formed, mainly equipped with Gotha and D.F.S. machines.

At the Armistice, only four S.M.81's were among the aircraft in southern Italy with co-belligerent forces. Several S.M.81's were captured by the Germans, most of them belonging to the 18° *Stormo* at Orvieto. Two transport Groups were formed under the German command's instructions and were based at Orio al Serio (Bergamo). In January 1944 the "*Terraciano*" Group, with S.M.81's in the transport rôle, was transferred by rail to Germany where a number of *Pipistrelli* were awaiting, completely overhauled. It is not known whether the aircraft were fitted with German armament. This unit had operated in Poland, Czechoslovakia and Austria in support of German troops on the Eastern front. The "*Terracciano*" Group was then based at Goslar alongside another Italian Group—"*Trabucchi*"—now operating more modern S.M.82's. The S.M.81's of *Repubblica Sociale Italiana* operating on the Eastern front had *Luftwaffe* insignia and the tricolour Italian insignia on the forward fuselage. A few other S.M.81's remained in Italy with liaison squadrons.

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SPECIFICATION

Data from Technical Manual C.A.205 of the *Ministero dell'Aeronautica*, issued 1936, applicable to the 5th production series of 36 aircraft in the serial block MM 20742—MM 20777, powered by Alfa Romeo 125 RC.35 and Alfa Romeo 126 RC.34 engines.

Dimensions:

Wing span, 78·74 ft.; length, 60·25 ft.; height, 14·33 ft.; mean chord, 12 ft. 7 ins.; wing area, 999 sq. ft.

Engines:	**P.X. RC.35**	**A.R. 125 RC.35**	**G.-R. K.14**	**A.R. 126 RC.34**
Take-off power	670 h.p.	680 h.p.	650 h.p.	780 h.p.
Empty weight	14,850 lbs.	14,991 lbs.	16,093 lbs.	14,991 lbs.
Loaded weight...	22,167 lbs.	23,157 lbs.	24,262 lbs.	23,157 lbs.
Climb to: 3,280 ft.	2 min. 27 secs.	4 min. 15 secs.	2 min. 11 secs.	3 min. 5 secs.
9,840 ft.	10 min.	11 min. 48 secs.	8 min. 28 secs.	9 min. 56 secs.
16,400 ft.	25 min.	20 min. 36 secs.	14 min.	19 min. 16 secs.
Max. speed at: 3,280 ft.	200 m.p.h.	174 m.p.h.	186 m.p.h.	177 m.p.h.
9,840 ft.	198 m.p.h.	198 m.p.h.	205 m.p.h.	200 m.p.h.
16,400 ft.	181 m.p.h.	202 m.p.h.	205 m.p.h.	209 m.p.h.

Stalling speed: 52/54 m.p.h.
Take-off run: 623/754 ft.
Range, at 14,763 ft. with 4,400 lb. fuel: 1,243 miles.

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